DEH CHO REGIONAL WILDLIFE WORKSHOP

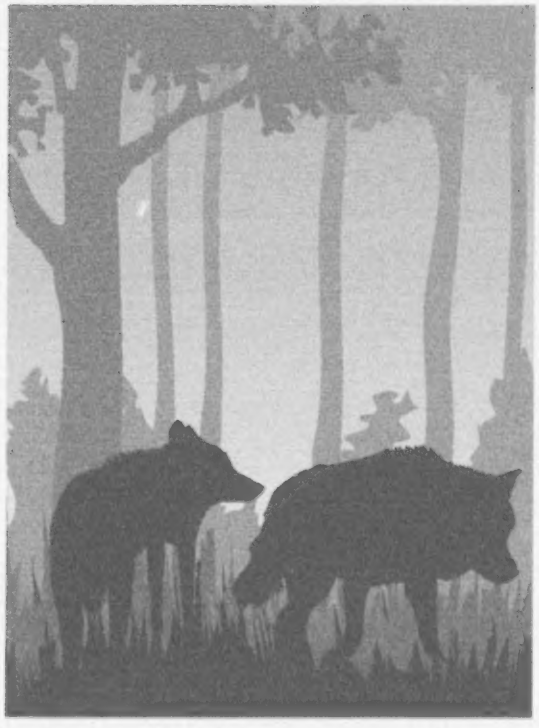
CO-HOSTED BY

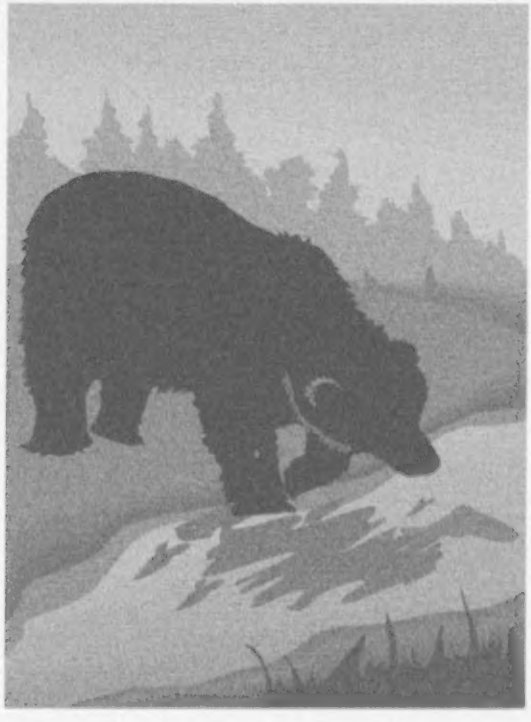
DEH CHO FIRST NATIONS

&

RESOURCES, WILDLIFE & ECONOMIC DEVELOPMENT

September 23-25, Fort Simpson





List of Participants - Deh Cho First Nations

Judy Sabourin - Liidlii Kue First Nation, Ft. Simpson
Jonas Antoine - Liidlii Kue First Nation, Ft. Simpson
Rita Cli - Liidlii Kue First Nation, Ft. Simpson
Albert Tsetso - Liidlii Kue First Nation, Ft. Simpson
Gerald Antoine - Liidlii Kue First Nation, Ft. Simpson and Moderator
Stanley Sanguez - Tthe'K'ehdeli First Nation, Jean Marie River
Leon Konisenta - N'ah adehe First Nation, Nahanni Butte
Francis Betsaka - N'ah adehe First Nation, Nahanni Butte
Tim Lennie - Pehdzeh Ki First Nation, Wrigley
Charlie Tale - Pehdzeh Ki First Nation, Wrigley
Louie Constant - Deh Gah Gotie First Nation, Ft. Providence
Leon Thomas - Ts'uehda First Nation, West Point
John Cayen - Ts'uehda First Nation, West Point
Napolean Cayen - Ts'uehda First Nation, West Point
Jonas Lafferty - Ft. Simpson Métis Nation
Roy Fabian - K'atlodeeche First Nation, Hay River
Daniel Sonfrère - K'atlodeeche First Nation, Hay River
Frank Fabian - K'atlodeeche First Nation, Hay River
Joe Tambour - K'atlodeeche First Nation, Hay River and Translator

List of Participants - Biologists

Ray Case - Resources, Wildlife & Economic Development, Yellowknife
Nic Larter - Resources, Wildlife & Economic Development, Ft. Simpson
Doug Tate - Heritage Parks Canada, Ft. Simpson
Anne Gunn - Resources, Wildlife & Economic Development, Yellowknife
Ben Olsen - Sahtu Renewable Resources Board, Tulita
Alasdair Veitch - Resources, Wildlife & Economic Development, Norman Wells
Arianna Zimmer - Resources, Wildlife & Economic Development, Norman Wells
Deborah Johnson - Resources, Wildlife & Economic Development, Ft. Smith
Tom Chowns - Resources, Wildlife & Economic Development, Hay River
Chris Paci - Dene Nation, Yellowknife
Craig Machtans - Canadian Wildlife Service, Yellowknife
Brett Elkin - Resources, Wildlife & Economic Development, Yellowknife
Susan Kutz - University of Saskatchewan, Saskatoon
Lorraine Seale - Department of Indian and Northern Affairs, Yellowknife

Unfortunately due to community hunting schedules Acho Dene Koe, Ft. Liard Métis Nation, Ft. Providence Métis Nation, K'a'gee Tu First Nation (Kakisa), and Sambaa K'e First Nation (Trout Lake) were unable to send participants.

DAY 1 - September 23, 2002 - Presentations from Various Agencies

Moderators Nic Larter and Ray Case

9:00 AM	Opening Prayer	Joe Tambour
	Opening Remarks and Welcome	Paul Kraft
9:15 AM	Western NWT Biophysical Study	Ray Case
9:30 AM	Deh Cho Historical RWED Wildlife Work	Nic Larter
9:45 AM	Heritage Parks Canada Wildlife Work	Doug Tate
10:00 AM	Coffee/Snacks - Posters	
10:30 AM	South Nahanni Caribou	Anne Gunn
10:45 AM	Sahtu Mountain Caribou	Ben Olsen
11:00 AM	Sahtu RWED Wildlife Research Overview	Alasdair Veitch
11:15 AM	Caribou and Seismic Exploration in the Sahtu	Arianna Zimmer
11:30 AM	Posters	
12:00 PM	Catered Lunch Break	
1:15 PM	South Slave RWED Wildlife Programs	Deborah Johnson
1:30 PM	Boreal Caribou	Anne Gunn
1:45 PM	Forest/Habitat Mapping	Tom Chowns
2:00 PM	Posters	
2:30 PM	Dene Land Use Programs	Chris Paci
2:45 PM	Bird Studies in the Liard	Craig Machtans
3:00 PM	Animal Health and Condition	Brett Elkin
3:15 PM	Coffee/Snacks - Posters	
3:45 PM	Parasites in Wildlife	Susan Kutz
4:00 PM	Contaminants in Wildlife	Brett Elkin
4:15 PM	Denendeh Contaminants Study	Chris Paci/Brett Elkin
4:30 PM	Closing Thoughts & Remarks	Ray Case
5:00 PM	Closing Prayer	Joe Tambour

DAY 2 - September 24, 2002

Community Views on Past, Present and Future Wildlife Research

Moderator Gerald R. Antoine

Time slots are based upon number of attendees but are not fixed

9:00 AM	Opening Prayer	Rita Cli
	Opening Comments	Gerald Antoine
9:15 AM	Where Do We Go with Research in the Deh Cho?	Nic Larter
9:30 AM	Jean Marie River First Nation	
10:15 AM	Fort Providence Dene Band	
11:00 AM	Coffee/Snacks	
11:15 AM	Hay River Reserve	
12:00 PM	Lunch	
1:15 PM	Liidlii Kue First Nation	
2:00 PM	Fort Simpson Métis	
2:30 PM	West Point First Nation	
3:15 PM	Coffee/Snacks	
3:30 PM	Nahanni Butte Dene Band	
4:15 PM	Pehdzeh Ki First Nation	
5:00 PM	Closing Comments/Prayer	Gerald Antoine/Daniel Sonfrère

DAY 3 - September 25, 2002

Round Table Discussion for all participants

Moderators - Gerald R. Antoine and Ray Case

9:00 AM	Opening Prayer	Tim Lennie
	Session 1 - Changes	Moderators
9:45 AM	Session 2 - Working as One	Moderators
10:45 AM	Coffee	
11:00 AM	Session 3 - Balanced Development	Moderators
11:45 AM	Closing Comments	Moderators
12:00 PM	Closing Prayer/Workshop Adjourns	Gerald Antoine

Resources, Wildlife & Economic Development thanks all community participants for attending this workshop and all Deh Cho First Nations staff who assisted with making this workshop a success. We realize that September is a busy time of year and that unavoidable conflicts with community hunting limited community participation to some extent. Special thanks to Theresa Cazon-Whelly. We would like to thank the students, parents, and staff of the Thomas Simpson School for catering the lunches and snacks.

PURPOSE OF WORKSHOP

A forum of this sort has been a long time coming to this region. While historically wildlife officers have worked closely with the communities in the Deh Cho to address community concerns, they did not have the time or training to conduct wildlife research programs. Now we have a wildlife biologist and technician residing in the Deh Cho who can focus on Deh Cho issues. We also have new funding opportunities with the Western NWT Biophysical Study. This has created a time of opportunity in the Deh Cho:

- To expand upon studies currently underway
- To identify studies community members and biologists can work together on
- To ensure that wildlife and wildlife habitat management decisions are made based upon good information
- To bring together science and traditional knowledge
- To work together for the benefit of wildlife in the Deh Cho

The objectives of this workshop are to:

- Obtain a clearer idea of the issues and concerns the communities have about wildlife
- Ensure that community representatives have information on wildlife studies that have been done in the Deh Cho and are currently being done elsewhere or could be done
- Promote ongoing discussion on wildlife issues

DAY 1: OVERVIEW OF CURRENT RESEARCH ACTIVITY IN AND AROUND THE DEH CHO

PowerPoint presentations were made by biologists from Resources Wildlife and Economic Development, the Canadian Wildlife Service, Parks Canada and the University of Saskatchewan on a variety of wildlife research topics and issues.

See Appendix A for a list of titles and copies of the powerpoint presentations.

DAY 2: OVERVIEW OF DEH CHO COMMUNITY CONCERNS AND ISSUES REGARDING WILDLIFE RESEARCH ACTIVITY AND NEEDS

Tthe'K'ehdeli First Nation, Jean Marie River

The health of the environment is a major issue. We need to ensure that we don=t make the same mistakes as were made down south where industry has had major impacts on the environement. Need for protection of the environment because that is what sustains the animals and ultimately the Dene. Mother earth is being taxed. Contaminants in the water and traditional food are of particular concern. The watershed is the lifeblood of the region.

Band members want the Axe Point area cleaned up and tested. Residents are concerned about the

water quality in the Deh Cho. Want the results of the tests available to the public. General health of the animals should be looked at and monitored.

There are changes happening in the environment; violent storms, less ice, butterflies and birds. These changes in climate cannot be stopped but we need to understand the changes. Monitoring and baseline information gathering are needed and we need to know what is in the food not that the food is unhealthy.

We need to work together, the biologists and the communities, and we need to find the balance between the environment and development.

Deh Gah Gotie First Nation, Fort Providence

There needs to be more studies looking at health, condition and contaminants in all traditional foods, but also up the food chain. Need to have more incentive programs for trappers to provide samples for scientific research. Harvest studies were also a good idea with again incentive programs for the trappers. The health of the environment and the lack of funding for cleaning up known polluted areas that affect the watershed is a big concern of Fort Providence. More money is needed to help get the youth out onto the land. Summer camps currently done by school but would be good to do in conjunction with RWED. More studies are needed in and around the community and specifically the effect of the highway on forests and drainage. Concern about where the caribou went since the bison reintroduction. Need to understand what is happening between caribou, moose, bison and wolves. There is also concern about overkill and harvest amongst their own people. We must get rid of the attitude of shooting an animal just for the sake of shooting it.

Water drainage along the highway north of Providence is not allowing for the natural flow of water, can that be changed? There used to be caribou and more moose near Providence, are the bison competing for their habitat? The Axe Point clean up should be finished, it wasn=t completed due to lack of additional funding. Otters should be studied for contaminants. Fish and water studies should take place to ensure the water quality is safe for consumption.

K'atlodeeche First Nation, Hay River

A concern was raised that there has been a lost spiritual connection with the land and now no one cares about it. All peoples should support each other in actively protecting the land and showing respect for Mother earth from which Dene flow. The term ownership has no business when talking about Mother earth and is against Dene principles. There needs to be support of youth getting out onto and respecting the land. People will harvest animals and it will directly affect animal populations. Concerned about moose in the Buffalo Lake area and working with RWED to conduct harvest studies. More studies are needed like the Deh Cho Boreal Caribou Project where scientific knowledge and traditional knowledge work hand in hand. There is a concern about pollution of the environment and changes that need to be monitored so that the youth can be prepared to face these changes. Want to see the youth learning from the scientists too. Dene people must be educated about respecting the land too. Concern of harvest in their traditional area being taken by others and

where does it go. Strongly support follow-up and action resulting from this workshop.

Chief was impressed with the fact that scientific and traditional knowledge can work together. The Buffalo Lake area is of great concern to the reserve. Monitoring of harvested moose in the Buffalo Lake region should take place. The disappearance of the muskrat from Buffalo Lake is also a concern. The lake is located in Wood Buffalo National Park, which also poses a few conflicts between the park and harvesters. Caribou studies should take place in the region. Oil and gas development is happening in the Cameron Hills. Commercial fishing on Great Slave Lake should be closely monitored. The mesh size of nets are smaller, is that due to smaller mean size of fish in the lake?

Liidlii Kue First Nation, Fort Simpson

Consultation and communication were a key theme throughout, especially communicating the highlights of this workshop to all of the leadership including those unable to attend. Water and the environment are the lifeline of Deh Cho Dene and Métis. Major concern is that mining activities will degrade water quality. Water quality needs to be monitored. Development will occur but only when industry and first nations are on the same page. Traditional knowledge must be used with research and by industry but there is an ownership of this knowledge and a cost to accessing it. The Deh Cho process and interim measures in regards to land management a major and recurring theme. Overkill, harvesting the highway corridor and wastage of animals are big concerns. A protected corridor along the Mackenzie highway would enable a more secure hold on hunters from outside the region. Monitoring of hunter harvest should be community based; wastage from harvests should be prosecuted.

Band members are concerned about the Deh Cho water shed and the monitoring of it. Long-term environmental monitoring is important; not only at the local level but also at regional and global levels. The Deh Cho process and the interim-measures agreement are of high priority. Scientific and traditional knowledge could work as one; although researchers must recognize that traditional knowledge is information that must also be paid for. The work that is done now is done to ensure a future for the youth. The youth should be more involved in the process and exposed to a summary of the biological presentations. School programs may be a way of exposing the youth that are interested in biology. Youth science camps and exposure to biologists is a good idea but it might be hard to get youth involved. The reality is that the youth must want to participate and learn; they cannot be forced. Community follow up should take place on an individual basis. Follow up workshops should take place in the near future. All of the community leaders and communities in the Deh Cho should have a copy of the workshop, whether they attended the workshop or not.

Fort Simpson Métis Nation

A concern was expressed as to why the abundance of some animal populations along the highway had changed recently. Would support the idea of program where trappers would have access to handheld global positioning systems (GPS). Mapping traplines with GPS is a good idea to provide trappers with a map of their area. This would allow people to get a better idea of what is out there.

Ts'uehda First Nation, West Point

Contaminants and keeping the environment clean are major concerns, as well as cleaning up old polluted sites. Monitoring for parasites and communicating the information about parasites from scientists to people is also important. They are supportive of the idea of the having science camps for youth to explain things about wildlife.

Mines that are around the Great Slave Lake should be cleaned up from earlier mining activity. Education of the youth on proper cooking methods when handling wild meat is another issue. Education on parasites that people can get from wildlife should be made available to the public.

N'ah adehe First Nation, Nahanni Butte

They are concerned about the health of the environment and especially the water getting polluted. Water quality was a major concern. The need for sampling, monitoring and cleaning up areas for example the Cadillac Mine on Prairie Creek. The results of testing need to be communicated to all. They make a suggestion that spring sampling of water is best because everything is flushed down to the river then. They would like to see more monitoring of the Nahanni bison population as there has not been a lot since the bison were put there in 1980. They also want to know why moose are scarce since the introduction of the bison. There are concerns about the changes seen recently like new animal sightings in the area and why they are happening.

Band members want tests that are done on the Prairie Creek mine made available to them. The mines should be taken care of properly, to ensure there will be no contaminants introduced into the South Nahanni River water shed. The monitoring of the bison on the Liard River should be consistent. Local people would like to get involved with future monitoring in the area.

Pehdzeh Ki First Nation, Wrigley

People are observing lots of changes on the land and fewer moose. We need to address this and Wrigley needs to be involved. Water and environment require monitoring and there is a real need to know what is happening in the watersheds, not only in Deh Cho but in adjacent areas. There are concerns about mining activities past and present and their affect on water quality. There is a concern about the health and condition of moose around water bodies, also other traditional country foods like caribou. They would like to see research on moose and caribou, looking into changing caribou migration patterns. There is concern about showing proper respect for animals, wasting meat, and of harvest in their traditional areas by others. Where does the harvest go? Monitoring the harvest ranks of greater importance than monitoring animal disease. Support combining scientific and traditional knowledge for research and of educating the young in the science and careers of wildlife research. Strong belief that kids will love the hands on of science camps and the need for educating youth. The need for more workshops like this and the need to communicate the outcome of this workshop strongly supported. Communication is a key to defeating the mistrust that still lingers. Also need to build capacity in the communities.

Band members are concerned about the migration of barren land caribou near Cap Mountain; and its influence on boreal caribou and moose migrations to the Mackenzie River. Monitoring of development in the Blackwater area should be a concern due to the prime moose habitat around the lake. The monitoring of moose and caribou harvest by hunters is a major concern for local people. The monitoring will ensure the populations are healthy and maintained for future generations. A protected corridor along the highway would be a good idea. Waste from harvesting is not acceptable and should be dealt with by RWED. Meeting new people that come into the community would be beneficial for all that are involved, the band office is a good place to visit. Band members would like to see more involvement from the youth in the workshops. Science camps are a good idea; the ecology camp held two years ago was a success with the youth.

DAY 3: ROUNDTABLE DISCUSSIONS

Three themes were identified from the discussions held on Day 2 and round table discussions were held between community delegates and biologists. The following summarizes the discussion and conclusions regarding these themes.

1. CHANGES

- Detecting change - There is a need to monitor the state of the environment and manage the air, land and water for future generations. Start monitoring now so that in 20 years we can know about what changes are happening.
- Understanding change - There is a need to understand more about climate change and how this will affect the land and the Dene relationship with the land.

2. WORKING AS ONE

- Combining traditional knowledge and science – It is not just a matter of working together but rather scientists and communities need to work as one. The Deh Cho boreal caribou study was discussed and used as an example of how information from two sources was brought together and how RWED and DCFN conducted the study as partners.
- Involving youth in science – We need to make science attractive to youth. We all need to work with schools and need to provide opportunities such as science camps to give youth hands on learning experiences. A Deh Cho Wildlife Research Station could provide opportunities for establishing long-term studies that youth could participate in and could provide opportunities to train people to conduct monitoring activities in their own communities or areas.
- Developing the proper perspective - Elder/scientist retreats used by the Northern Contaminants Program have been effective in providing scientists with a better understanding of the relationship between Dene, Métis and the Land. Ongoing opportunities for communication and discussion like this workshop are needed.

3. BALANCED DEVELOPMENT

- Effects of development on watersheds – We need to understand what is happening and what the risks are to the Mackenzie watershed as it all flows through the Deh Cho.
- Effects of seismic activity, seismic lines and roads – We need to understand how this activity effects caribou and birds
- Providing information needed for establishing protected areas – We need to conduct studies to help identify areas that need to be protected.
- Sustaining the land – We need to sustain the land. We need to respect the land and take care of it so that animals can replenish themselves. Need to remove pollution and fix up old messes.

WORKSHOP FOLLOW-UP:

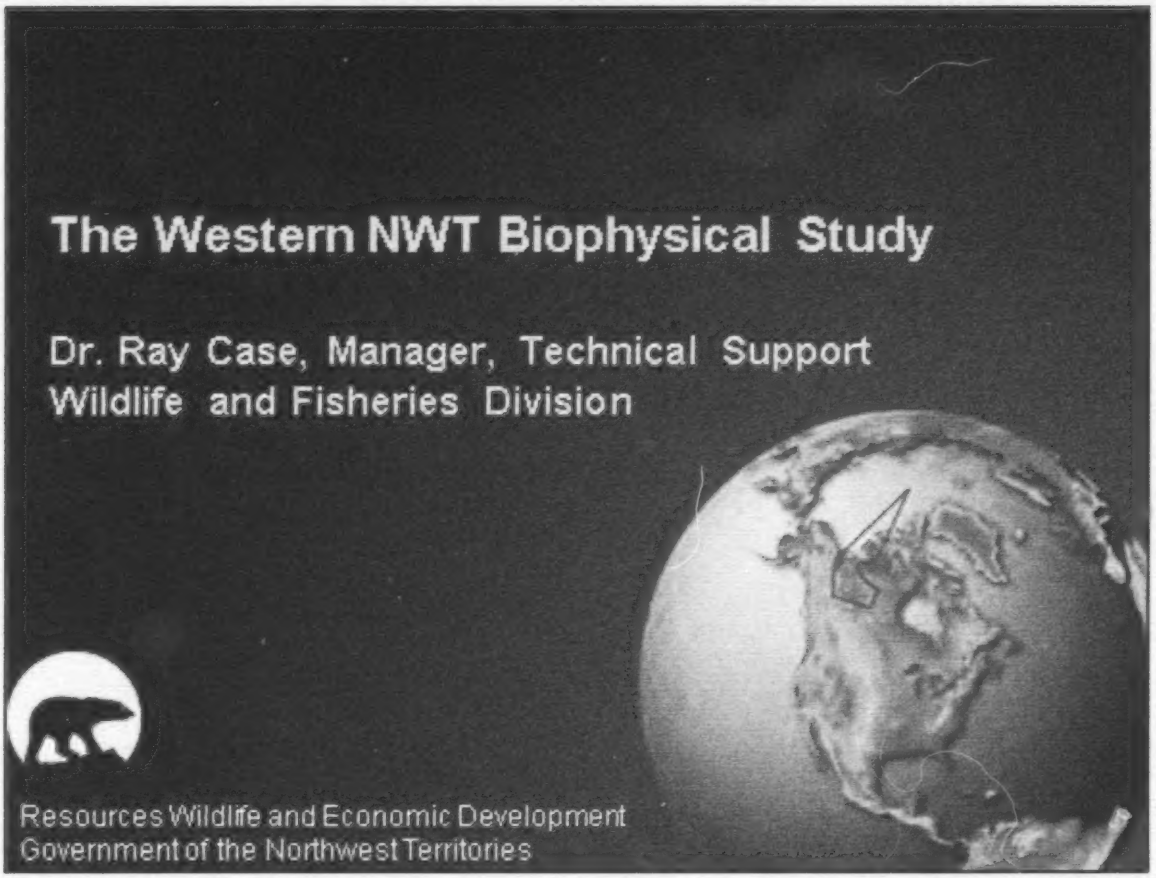
Based upon discussions held at the Workshop a number of follow-up activities are recommended:

1. Ensure that the summary and hard copies of presentations covered at the Workshop are distributed to all Deh Cho First Nations;
2. Arrange meetings and discussions with those First Nations that were unable to send representatives to the Workshop (Trout Lake, Kakisa, Ft. Liard). For Kakisa, Regional Biologists from Ft. Smith and Ft. Simpson should be in attendance;
3. Circulate letters to schools in the Deh Cho indicating that there is now a Regional Biological Program with RWED and that they are available to make school presentations if requested;
4. Explore options and develop a proposal for how a science camp/research station could be established in the Deh Cho;
5. Identify ways that moose populations in the Deh Cho could be monitored at regular intervals;
6. Identify ways that the Nahanni bison population could be monitored regularly;
7. Identify ways that the status of boreal caribou in the Deh Cho could be clarified and the potential impacts of oil and gas exploration and development on boreal caribou could be studied in the Cameron Hills area and possibly in other key areas of boreal caribou range in the Deh Cho;
8. Identify ways that community based monitoring of wildlife health could be implemented in the Deh Cho;
9. Identify ways that monitoring of the harvest in the Deh Cho could be enhanced;
10. Identify appropriate indicators for monitoring and assessing environmental and landscape change (including those resulting from climate change) that could be established in the Deh Cho;
11. Identify studies that are needed to support protected areas initiatives in the Deh Cho;
12. Maintain contact and dialogue with all Deh Cho First Nations to ensure that all research and monitoring programs are developed and implemented together.

Appendix 1.

The Western NWT Biophysical Study

Presented by Ray Case, RWED Yellowknife


The Western NWT Biophysical Study
Dr. Ray Case, Manager, Technical Support
Wildlife and Fisheries Division
Resources Wildlife and Economic Development
Government of the Northwest Territories

The Western NWT Biophysical Study

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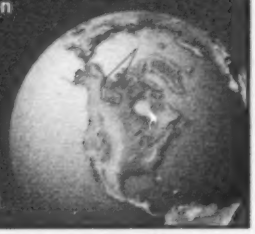
Wildlife and Fisheries Division



Resources Wildlife and Economic Development
Government of the Northwest Territories

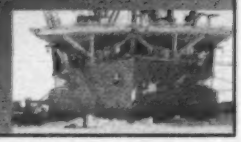
Western NWT Biophysical Study

- THE CONTEXT
  - Geographic Scope
  - The Non-Renewable Resource Development Strategy
  - Cumulative Effects Assessment and Management Framework
- THE STUDY
  - Vision
  - Goals
  - Approach
  - Potential Areas for Study
  - Status

Geographic Scope

Non-Renewable Resources Development Strategy

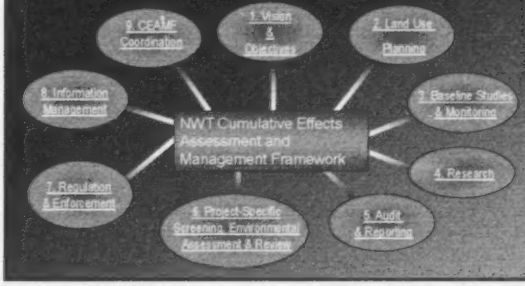
- GNWT Strategy published September 2000;
- Prepared in context of increased development;
- Proposal to Federal Government for joint investment;
- Guide internal decision making;
- Nineteen Strategies;
- Strategy #10 calls for a substantial investment in baseline research.



Cumulative Effects Assessment and Management Framework (CEAMF)

- Response to increasing development pressures;
- Recognition that project-specific EA not an effective forum for cumulative effects assessment in the NWT;
- Systematic, coordinated approach to cumulative effects assessment and management;
- Builds on existing processes;
- Ongoing process - coordination, gap analysis, priority-setting, and focusing resources.

CEAMF


8. CEAMF Coordination
1. Vision & Objectives
2. Land Use Planning
8. Information Management
3. Baseline Studies & Monitoring
NWT Cumulative Effects Assessment and Management Framework
4. Research
7. Regulation & Enforcement
6. Project-Specific Screening, Environmental Assessment & Review
5. Audit & Reporting

The Proposal

Vision

"To foster the sustainable development of resource-based industries in the western NWT, through supporting a coordinated, regionally-responsive, multi-year study to conduct baseline biophysical and applied research involving both science and traditional knowledge to support decision-making related to resource management, planning and environmental assessment."

The Proposal

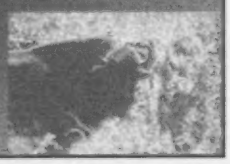
- Provide adequate funding to respond to regional priorities for research related to air, water, wildlife and vegetation, while maintaining coordination and communication at the territorial level;
- Establish a partnership approach with other stakeholders, including territorial, federal and aboriginal governments, industry and ENGOs;
- Use the partnership to identify research priorities and areas for collaborative research; and,
- Minimize redundancy and maximize efficiency by working within, and supporting, existing processes.

The Management Team

- Territorial Representative
- Federal Representative
- Deh Cho First Nations Designate
- Sahtu Designate
- Gwich'in Designate
- Inuvialuit Designate
- ENGO (Observer)
- Industry (Observer)

The Approach

- To identify and priorize gaps in information necessary to assess the potential environmental impacts of development activities.
  - Regional/Community/Management Board workshops and discussions;
  - Definition of a research framework;
  - Review of existing information;
  - Follow-up regional workshops and discussions;



The Approach (cont.)

- To support ongoing research already identified as being a priority through existing processes.
  - Boreal caribou studies;
  - Ecological land classification;
  - Air quality monitoring;
  - Research framework;

The Approach (cont.)

- To support research identified through community and regional meetings and workshops as being a priority;
- To establish partnerships with Federal agencies, industry, universities, co-management boards and non-government organization to support priority research.

Potential Areas for Study

-Your input and advice is essential!

Current Status

- Federal and Aboriginal partners on board;
- Management Team formed;
- Funding in place for some activities this fiscal year;
- Seeking supplemental funding for this fiscal year;
- Funding of $1M per year for four years identified within the Departmental Business Plan (requires Legislative Assembly approval);
- Information gap identification underway;

What's next?

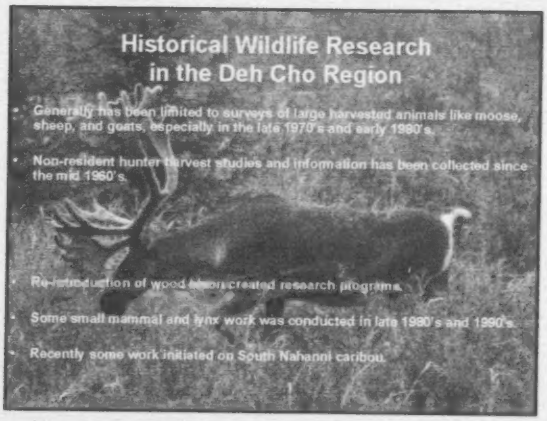
- Compile and analyze information from communities;
- Establish advisory group(s) to recommend approaches;
- Identify and secure partnerships;
- Provide support for research;

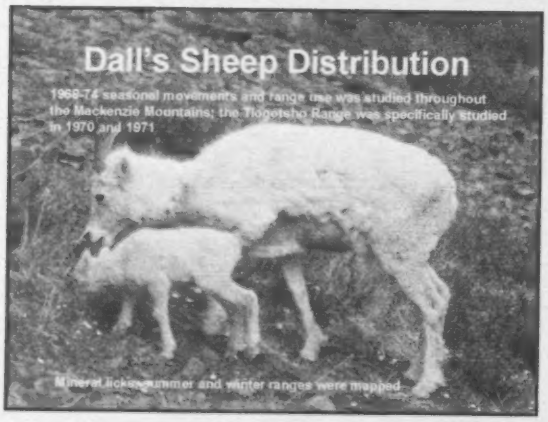
Appendix 2.

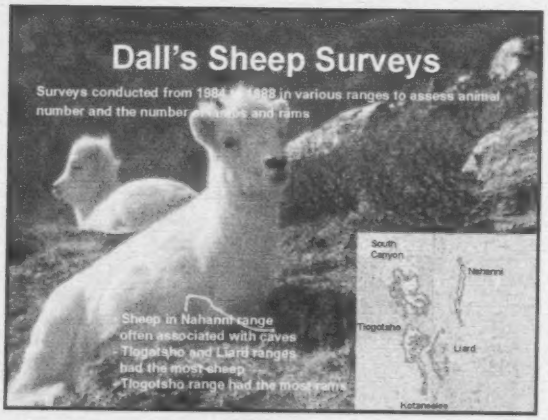
Deh Cho Historical Wildlife Research

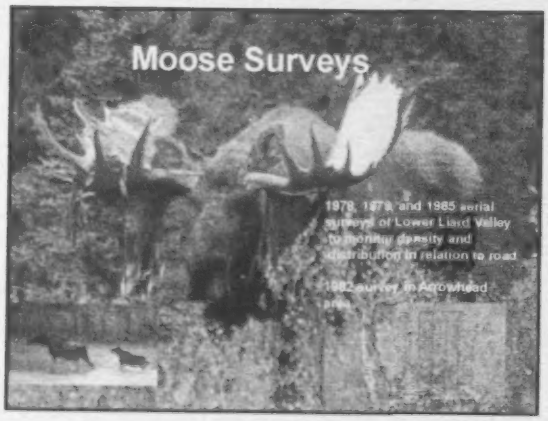
Presented by Nic Larter, RWED Fort Simpson

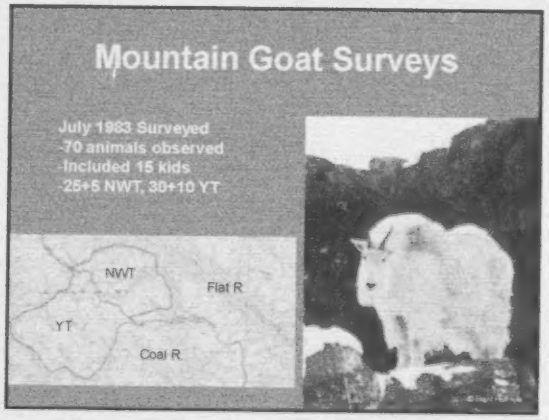
Deh Cho Historical Wildlife Research

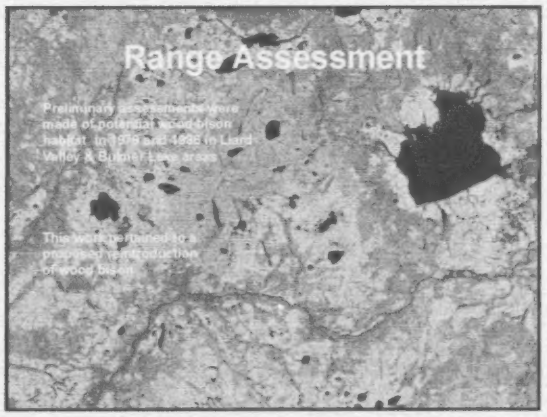

Historical Wildlife Research in the Deh Cho Region
Generally has been limited to surveys of large harvested animals like moose, sheep, and goats, especially in the late 1970's and early 1980's
Non-resident hunter harvest studies and information has been collected since the mid 1960's
Re-introduction of wood bison created research programs
Some small mammal and lynx work was conducted in late 1980's and 1990's
Recently some work initiated on South Nahanni caribou

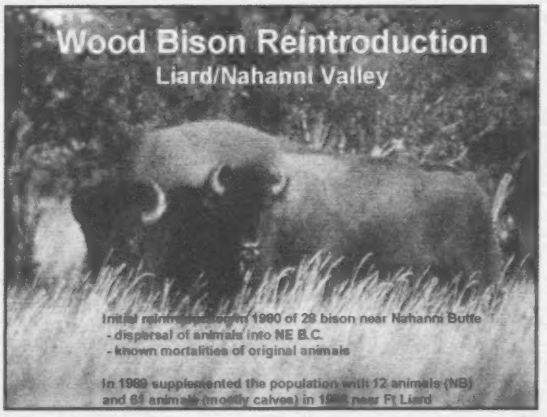

Dall's Sheep Distribution
1968-74 seasonal movements and range use was studied throughout the Mackenzie Mountains; the Tlogotsho Range was specifically studied in 1970 and 1971
Mineral licks, summer and winter ranges were mapped

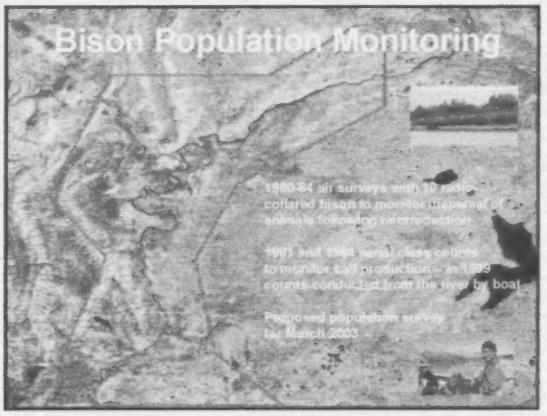

Dall's Sheep Surveys
Surveys conducted from 1984 to 1988 in various ranges to assess animal number and the number of lambs and rams
Sheep in Nahanni range often associated with caves
Tlogotsho and Liard ranges had the most sheep
Tlogotsho range had the most lambs
South Canyon
Nahanni
Tlogotsho
Liard
Kotaneelee

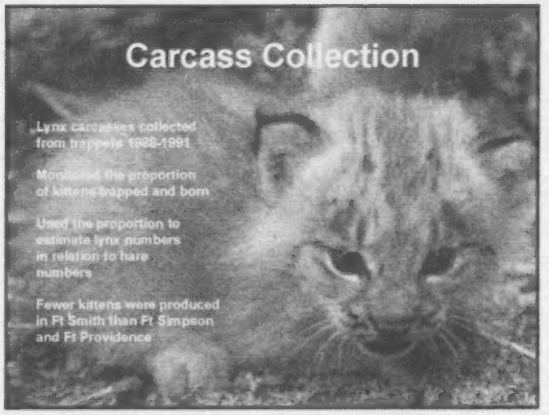

Moose Surveys
1978, 1979, and 1985 aerial surveys of Lower Liard Valley to monitor density and distribution in relation to road
1982 survey in Acrow Head

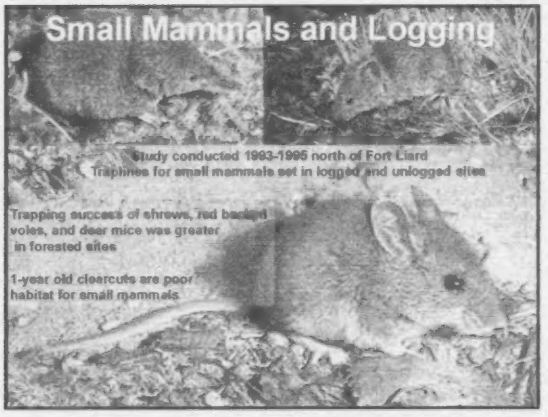

Mountain Goat Surveys
July 1983 Surveyed
-70 animals observed
-Included 15 kids
-25+5 NWT, 30+10 YT
NWT
Flat R
YT
Coal R

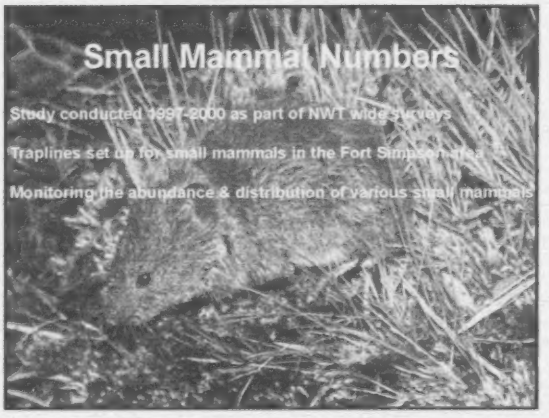

Range Assessment
Preliminary assessments were made of potential wood bison habitat in 1978 and 1985 in Liard Valley & Buffalo Lake areas
This work led directly to a proposal for reintroduction of wood bison

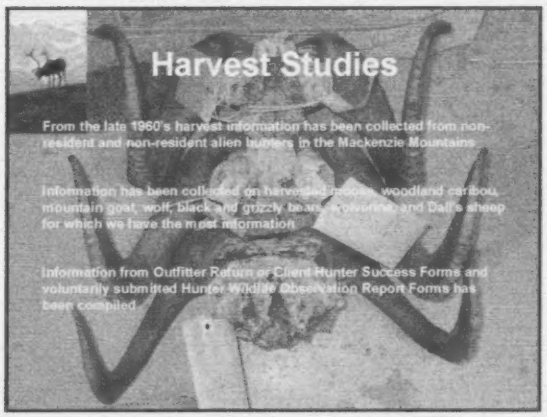

Wood Bison Reintroduction
Liard/Nahanni Valley
Initial reintroduction in 1990 of 28 bison near Nahanni Butte
- dispersal of animals into NE B.C.
- known mortalities of original animals
In 1989 supplemented the population with 12 animals (NB) and 61 animals (mostly calves) in 1993 near Ft Liard

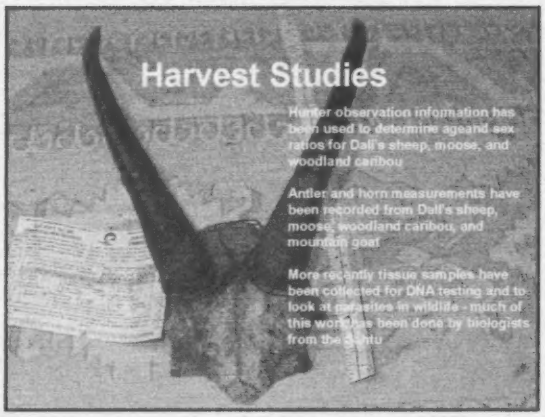

Bison Population Monitoring
1980-94 air surveys with 19 collared bison to monitor dispersal animals following reintroduction
1991 and 1994 aerial calf counts to monitor calf production – in 1999 counts conducted from the river by boat
Proposed population survey for March 2003


Carcass Collection
Lynx carcasses collected from trappers 1988-1991
Monitored the proportion of kittens trapped and born
Used the proportion to estimate lynx numbers in relation to hare numbers
Fewer kittens were produced in Ft Smith than Ft Simpson and Ft Providence


Small Mammals and Logging
Study conducted 1993-1995 north of Fort Liard
Traplines for small mammals set in logged and unlogged sites
Trapping success of shrews, red backed voles, and deer mice was greater in forested sites
1-year old clearcuts are poor habitat for small mammals


Small Mammal Numbers
Study conducted 1997-2000 as part of NWT wide surveys
Traplines set up for small mammals in the Fort Simpson area
Monitoring the abundance & distribution of various small mammals

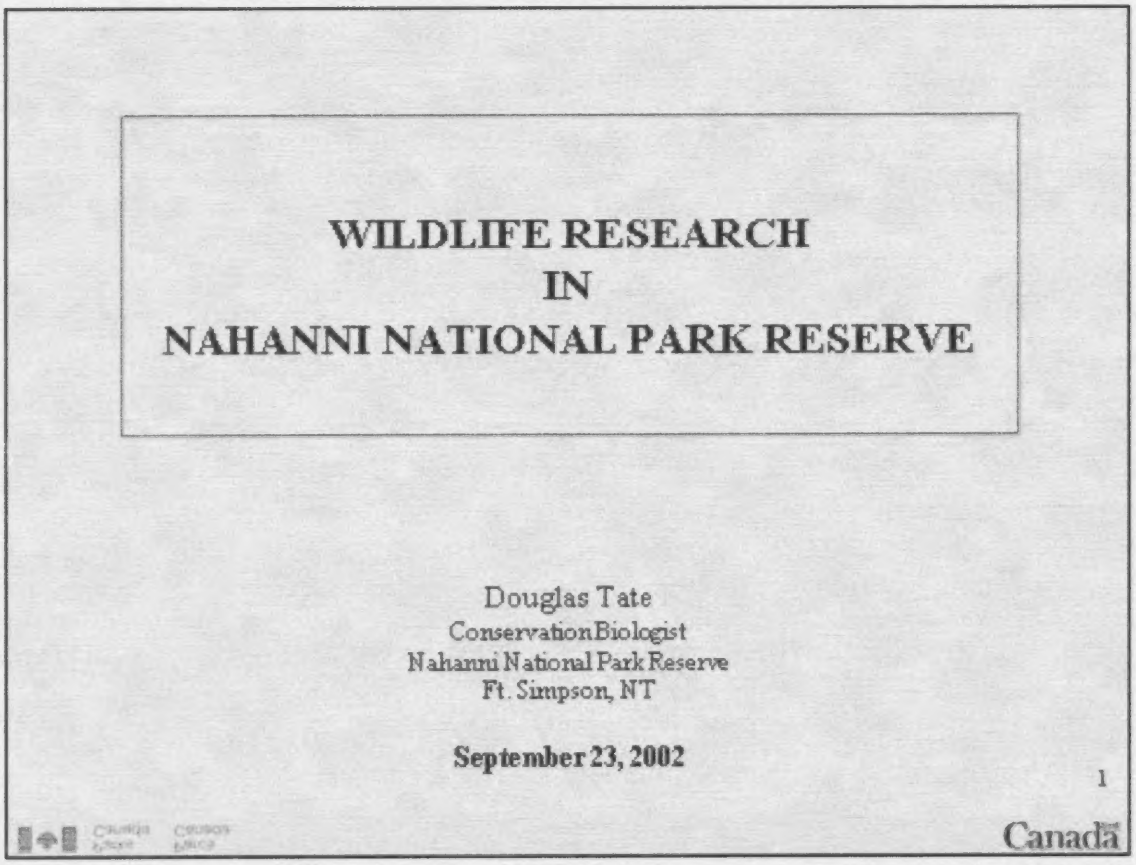

Harvest Studies
From the late 1960's harvest information has been collected from non-resident and non-resident alien hunters in the Mackenzie Mountains
Information has been collected on harvested moose, woodland caribou, mountain goat, wolf, black and grizzly bears, wolverine, and Dall's sheep for which we have the most information
Information from Outfitter Return or Client Hunter Success Forms and voluntarily submitted Hunter Wildlife Observation Report Forms has been compiled


Harvest Studies
Hunter observation information has been used to determine age and sex ratios for Dall's sheep, moose, and woodland caribou
Antler and horn measurements have been recorded from Dall's sheep, moose, woodland caribou, and mountain goat
More recently tissue samples have been collected for DNA testing and to look at parasites in wildlife - much of this work has been done by biologists from the Gwich

Appendix 3.

Wildlife Research in Nahanni National Park Reserve

Presented by Doug Tate, Heritage Parks Canada



WILDLIFE RESEARCH IN NAHANNI NATIONAL PARK RESERVE

Douglas Tate
Conservation Biologist
Nahanni National Park Reserve
Ft. Simpson, NT

September 23, 2002

1

Canada

PRESENTATION OVERVIEW

I. Parks Canada Mandate
   - Reasons for doing Research & Monitoring
II. Development of Research Priorities for Nahanni
III. Highlights of Recent Wildlife Studies
IV. Conclusions and Future Directions

2

Canada

I. PARKS CANADA MANDATE

- Parks Canada has a National System Plan for its parks, to protect representative samples of Canada's Natural Regions
- Nahanni National Park Reserve represents the Mackenzie Mountains region
- *Canada National Parks Act* (2000) clearly states that protection of ecological integrity is the first priority of National Parks

[*Ecological Integrity can be defined as 'the health of the land'*]

3

Canada

4

Canada

II. RESEARCH PRIORITIES

- Jan 2000 Workshop (DCFN/PC) to determine the state of park ecology, research needs.
  - federal and territorial government representatives
  - scientific researchers
  - local community leaders
  - elders and active harvesters
- Jun 2000 - formation of Nahʔa Dehé Consensus Team as part of Deh Cho I.M.A.; 3 members appointed by DCFN and 3 by Parks Canada
  - Ecological Integrity Statement
  - Park Management Plan
  - Interim Park Management Arrangement

5

Canada

II. RESEARCH PRIORITIES (continued)

- Nahʔa Dehé Consensus Team took results of the workshop and completed the Ecological Integrity Statement, which:
  - affirms the importance of research, monitoring and traditional knowledge
  - acknowledges that Dene are inseparable from the land, and traditional use will continue as a part of the park ecology
  - provides objectives and targets for park management, including wildlife research
  - confirms the South Nahanni River watershed as the primary area of interest and influence in terms of park ecology

6

Canada

III. HIGHLIGHTS OF WILDLIFE RESEARCH

- Woodland Caribou
- 1995- Study initiated by NNPR after consultation and concerns expressed by Liidlii Kue First Nation
- Cooperation with GNWT-RWED and YTG-Renewable Resources

7

Canada

III. HIGHLIGHTS (continued)

- Dall's Sheep
- Composition counts initiated in 2001, repeated in 2002
- Method similar to Sahtu approach, smaller scale
- Contributing to parasite study with RWED & University of Saskatchewan

8

Canada

III. HIGHLIGHTS (continued)

- Bull Trout
- Work with Neil Mochnacz (MSc student with UofM & DFO) undertaken in 2001
- Study widespread in Mackenzie Valley; Keele, Liard, Kotaneelee Rivers
- Southern populations of Bull Trout have declined due to industrial disturbance
- Listed as 'threatened' in US, 'sensitive' in AB, BC & YT, and 'may be at risk' in NWT (RWED, 2000)

9

Canada

III. HIGHLIGHTS (continued)

- Bull Trout
- Trout in SNW are Bull Trout, not Dolly Varden
- Found in several sites in South Nahanni River, Flat River and tributary streams
- Tributaries of Prairie Creek found to be spawning areas, occur along proposed road corridor
- Any future development will need to consider potential impacts on spawning habitat

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Canada

III. HIGHLIGHTS (continued)

- Grizzly Bear
- 2002 - Project initiated in cooperation with Dr. John Weaver, Wildlife Conservation Society.
- Objectives:
- Determine relative abundance and distribution of grizzlies in and adjacent to park
- Identify movement patterns, important corridors, potential areas of conflict

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Canada

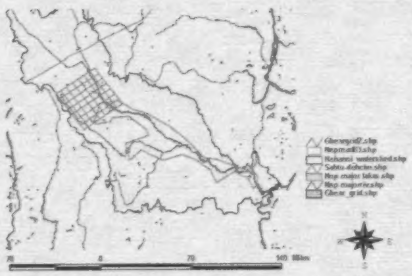
III. HIGHLIGHTS (continued)

- Grizzly Bear
- No capturing or handling of bears
- Barbed wire corral with scent lure - bears investigate smell but find no food
- Hair samples caught on wire; additional hairs taken from rub trees
- DNA analysis can identify individuals, gender, parental relationships. Other analyses (Nitrogen isotope) may show food habits

12

Canada

Grizzly Bear Study Grid



13

Canada

III. HIGHLIGHTS (continued)

- Other Wildlife
- Record sightings of bears, wolves, moose, caribou, sheep and other species
- Forest bird monitoring and recording of observations on NWT Bird Checklists during park shifts and patrols

- Periodic monitoring of rare species such as Trumpeter Swans, Upland Sandpipers, Nahanni Aster

14

Canada

IV. CONCLUSIONS AND FUTURE DIRECTION

- Ecological Integrity (health of the land) is good in Nahanni National Park Reserve
- There are some areas of concern, there is a need to continue research
- Cooperation with DCFN, RWED, communities and other organizations has worked well, and continue to be very important in future
- Planning to develop a Science Strategy for the park which spells out priorities in more detail, and we look forward to involving our partners in this effort.
- Parks Canada is a major partner in administering the new Species at Risk Act - may be more opportunities for cooperative research

15

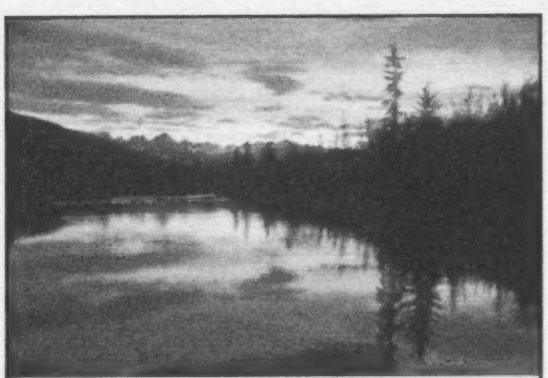
Canada

MAHSI CHO / THANK YOU

- Resources, Wildlife and Economic Development & Deh Cho First Nations
- Nah•a Dehé Consensus Team
- RWED (YK, Deh Cho & Sahtu)
- Yukon Renewable Resources
- Department of Fisheries and Oceans,
- Environment Canada (Canadian Wildlife Service)
- University of Manitoba, Univ Saskatchewan
- Wildlife Conservation Society

16

Canada



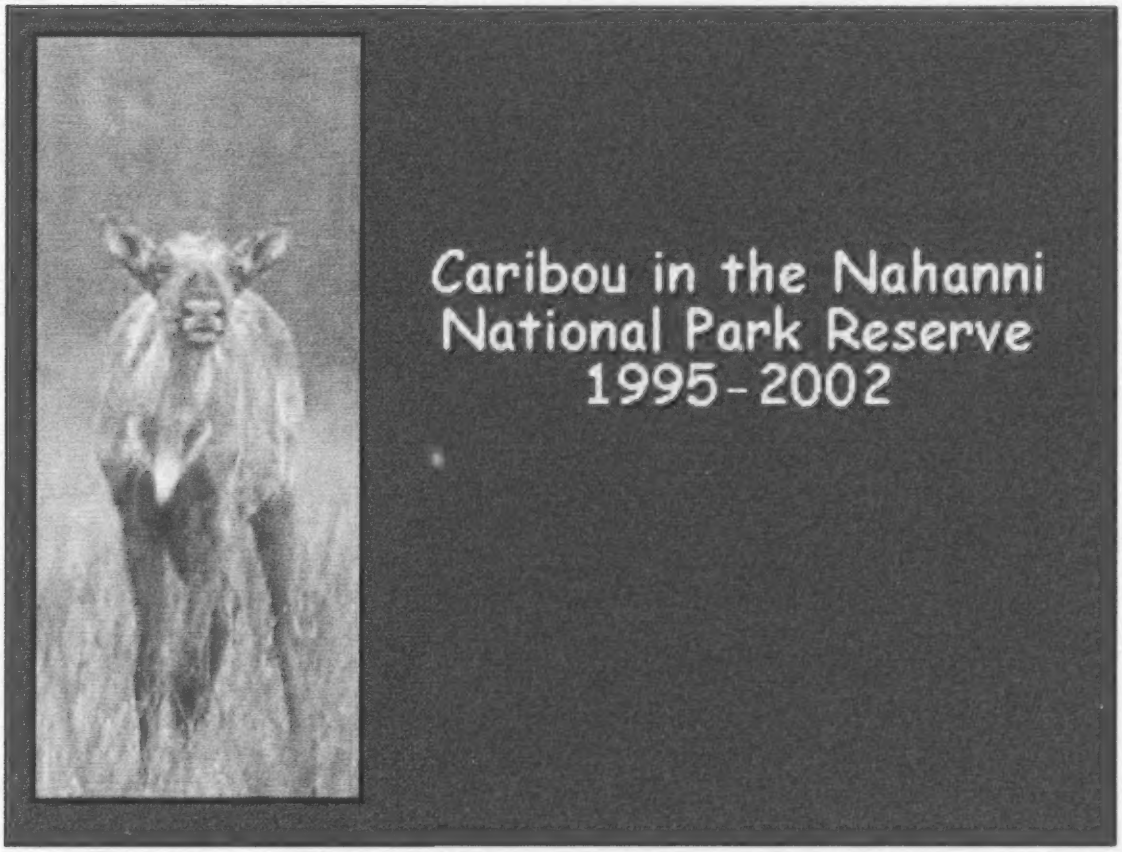
17

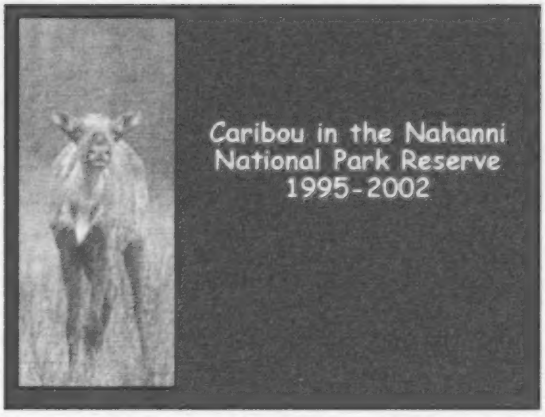
Canada

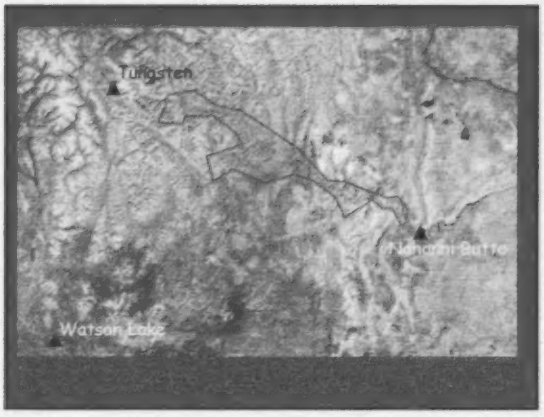
Appendix 4.

Caribou in the Nahanni National Park Reserve 1995-2002

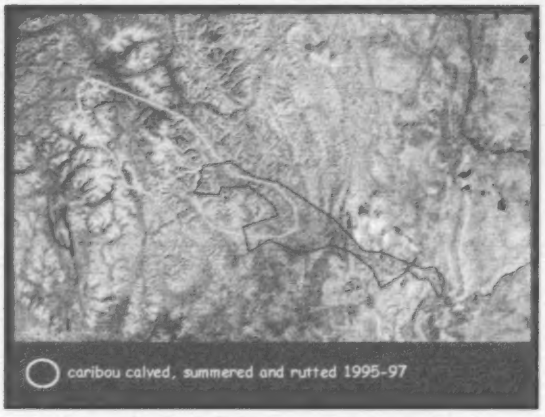
Presented by Anne Gunn, RWED Yellowknife

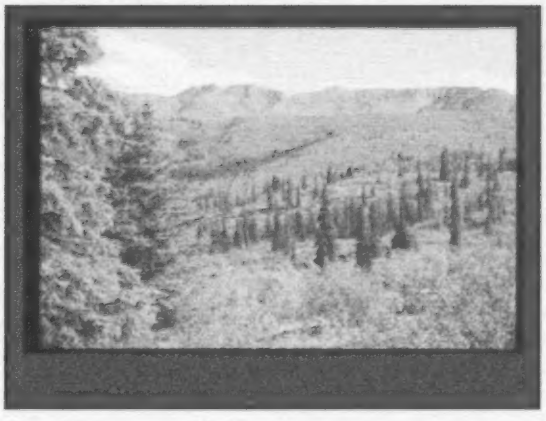


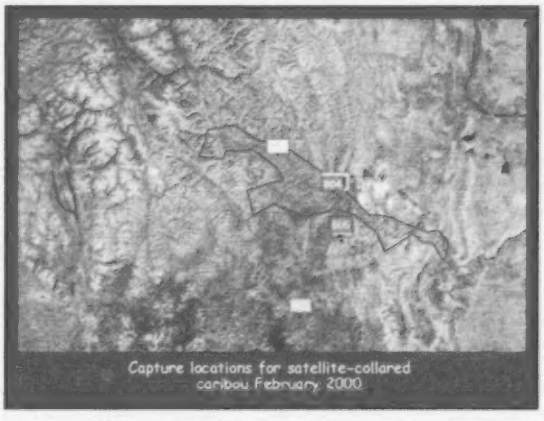

Caribou in the Nahanni
National Park Reserve
1995-2002

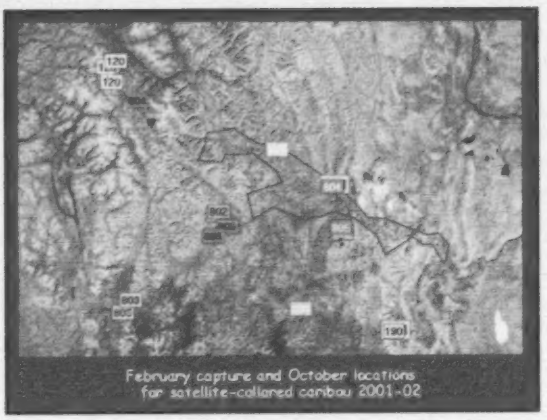

Tungsten
Nahanni Butte
Watson Lake

caribou collared 1995
caribou wintered 1996-98

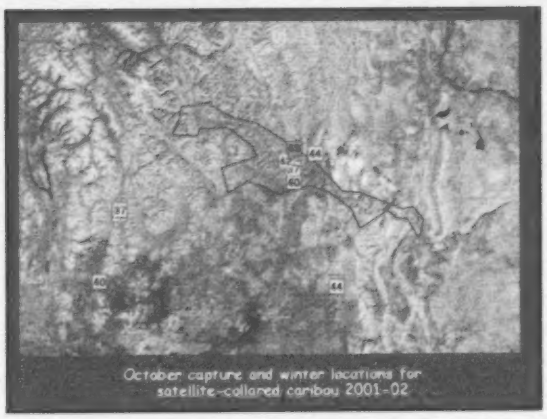

caribou calved, summered and rutted 1995-97



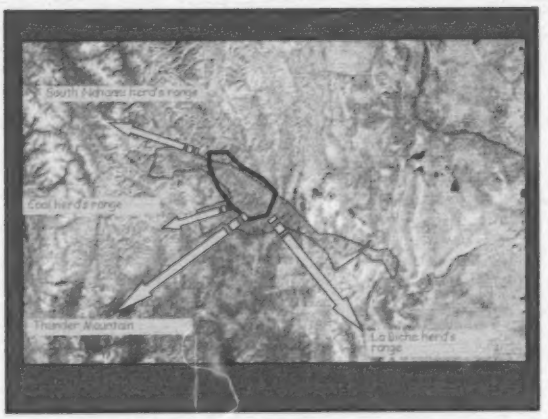

Capture locations for satellite-collared
caribou February 2000

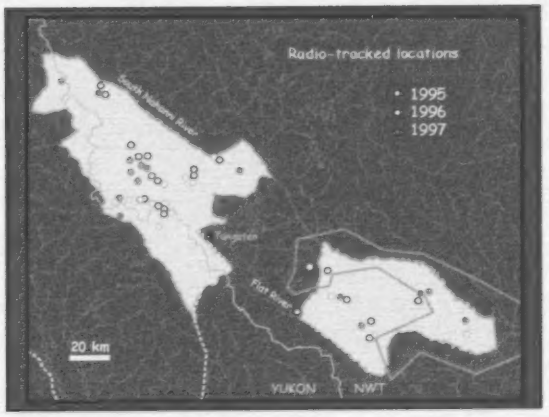


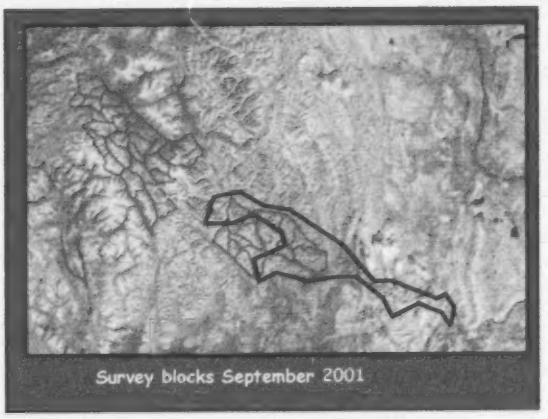
February capture and October locations for satellite-collared caribou 2001-02

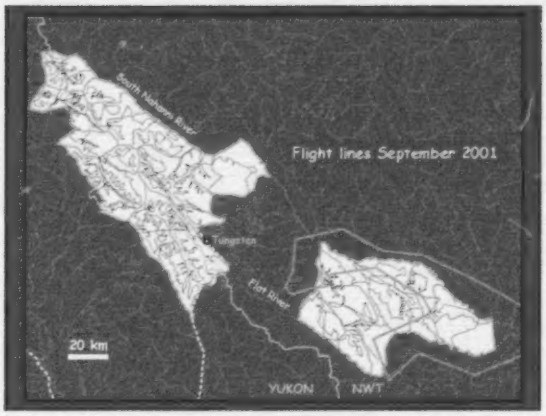


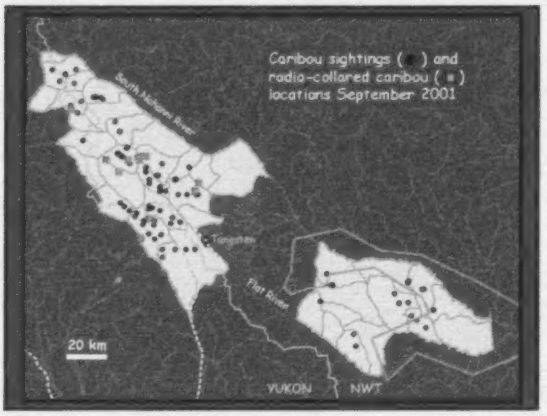
October capture and winter locations for satellite-collared caribou 2001-02

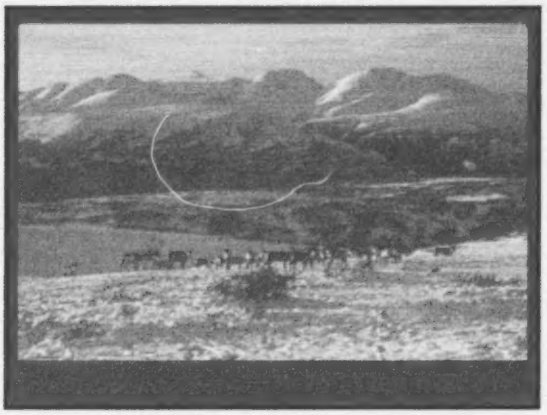


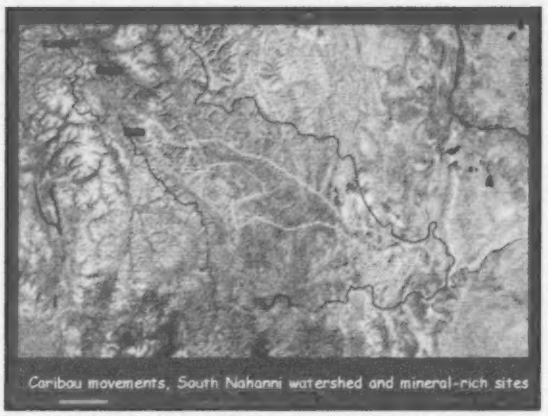



Survey blocks September 2001


South Nahanni River
Flight lines September 2001
Tungsten
Flat River
20 km
YUKON
NWT


Caribou sightings (·) and
radio-collared caribou (▪)
locations September 2001
South Nahanni River
Tungsten
Flat River
20 km
YUKON
NWT

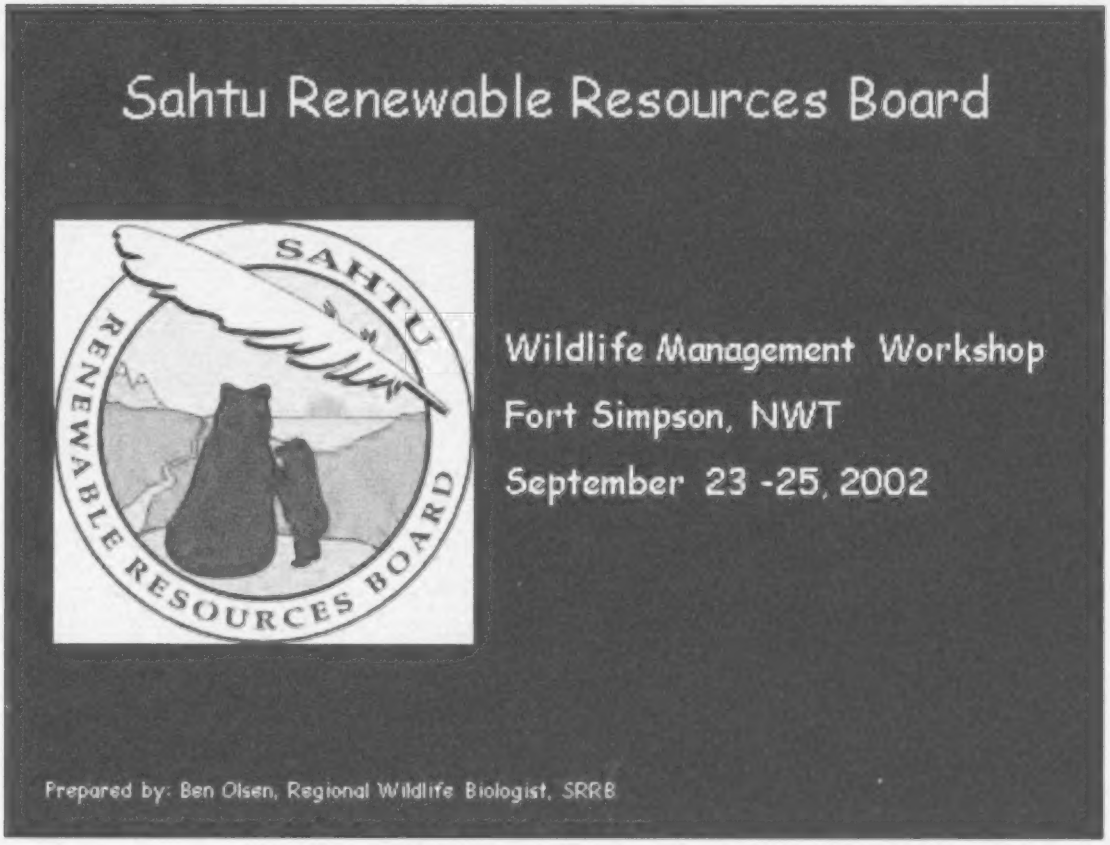



Caribou movements, South Nahanni watershed and mineral-rich sites

Appendix 5.

Woodland Caribou Research and Co-Management in the SSA

Presented by Ben Olsen, Sahtu Renewable Resources Board



Sahtu Renewable Resources Board

Wildlife Management Workshop
Fort Simpson, NWT
September 23 -25, 2002

Prepared by: Ben Olsen, Regional Wildlife Biologist, SRRB

Land Claim Area

Established by:
- Sahtu Dene and Metis Comprehensive Land Claim Agreement (Section 13)

SRRB Mandate

- The Board has equal representation from the Sahtu Districts and government (DFO, DRWED, CWS)
- The Board is responsible for wildlife, fisheries, and forest management in the Sahtu Settlement Area
- The Board acts in the public interest

SRRB Mission Statement

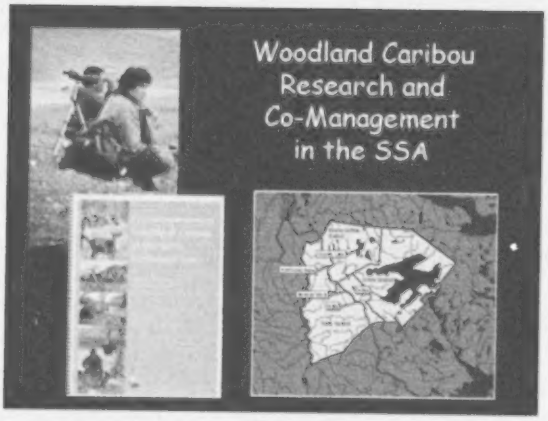
To protect, conserve, and manage, in a co-operative spirit, all renewable resources within the Sahtu Settlement Area in a sustainable manner to meet or exceed the needs of the claimants today and in the future for generations to come

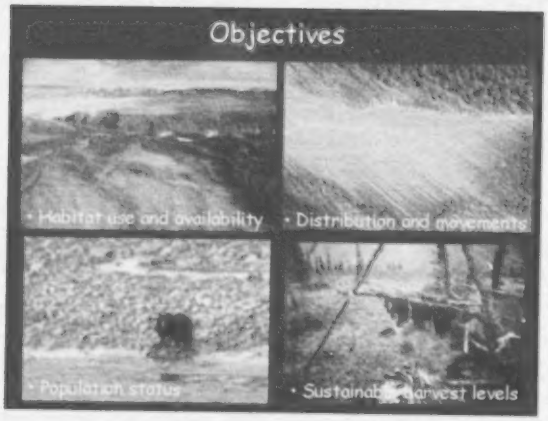
Co-Management

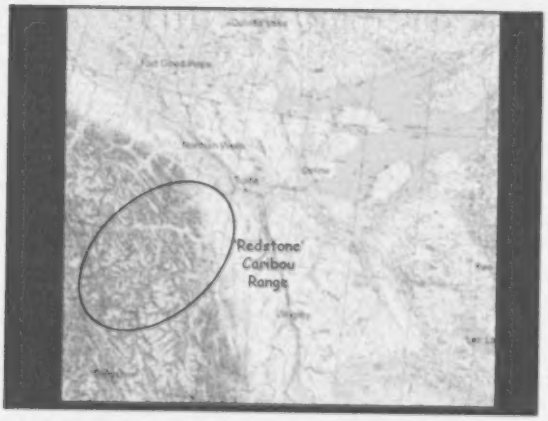
- Conducts research in co-operation with Renewable Resource Councils in Sahtu communities
- Provides assistance to other researchers working in the settlement area
- Provides input into Government and other agencies' policies, regulations, legislation, and initiatives
- Development and review of management plans for wildlife, fisheries and forests

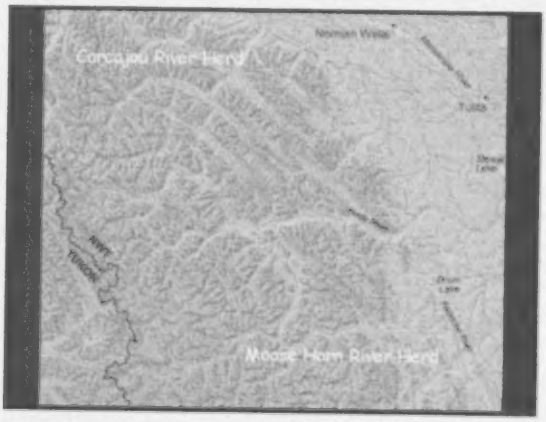
List of Projects in 2002-03

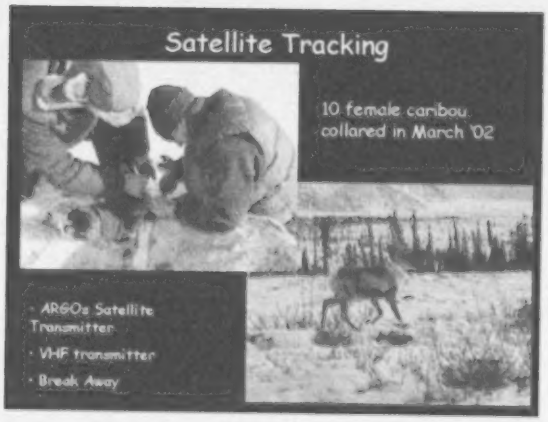
- Great Bear Lake Trout Movements and Stock Assessment
- Mackenzie River Index Netting
- Sahtu Geographic Information System (GIS) Project
- West Bluenose Caribou Study
- East Bluenose Caribou Study
- Wildlife Health: Assessing Status and Developing Expertise
- Mercury Levels in Fish in Lakes in the Sahtu
- Woodland Caribou in the Central Mackenzie Mountains

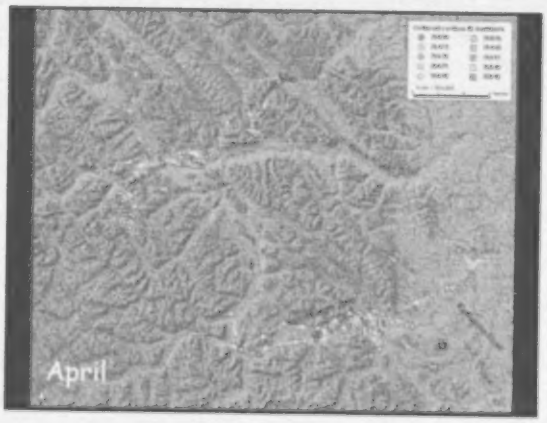

Woodland Caribou
Research and
Co-Management
in the SSA

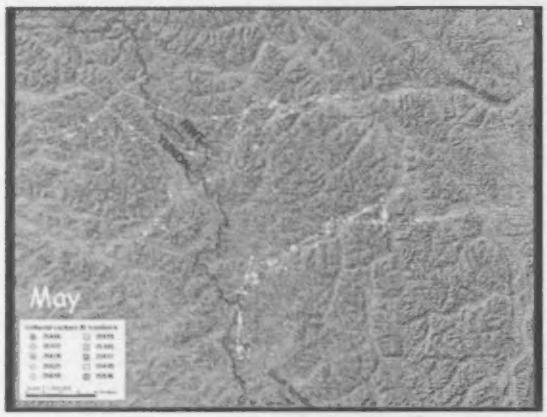

Objectives
• Habitat use and availability
• Distribution and movements
• Population status
• Sustainable harvest levels

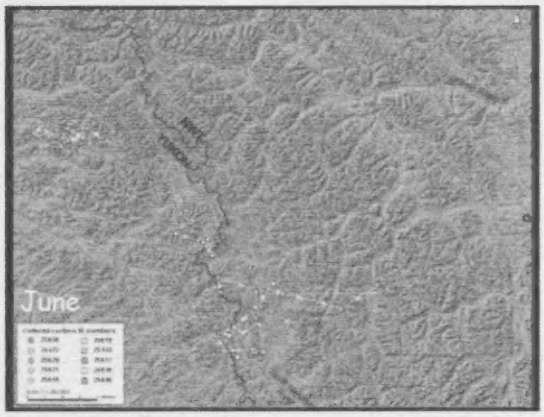

Redstone
Caribou
Range

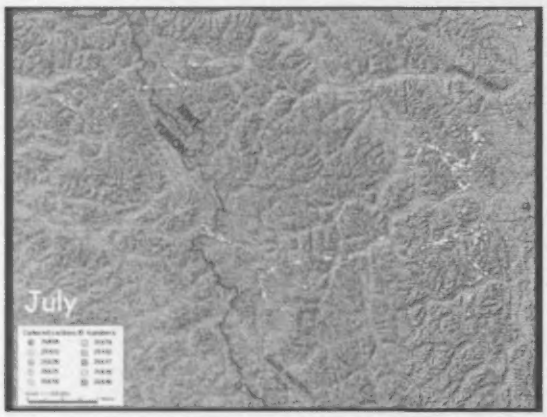

Cancajou River Herd
Moose Horn River Herd

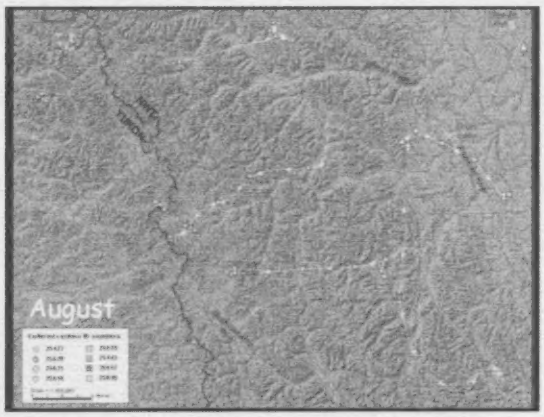

Satellite Tracking
10 female caribou
collared in March '02
• ARGOs Satellite
Transmitter
• VHF transmitter
• Break Away

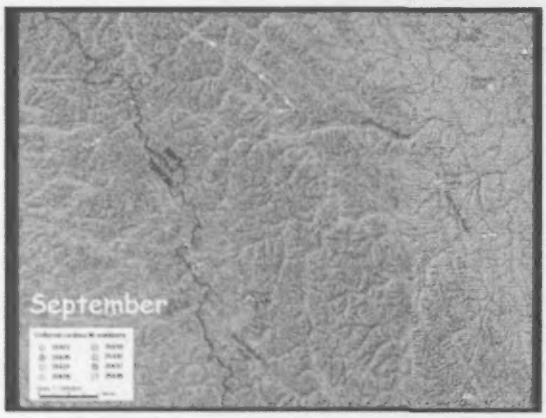

April





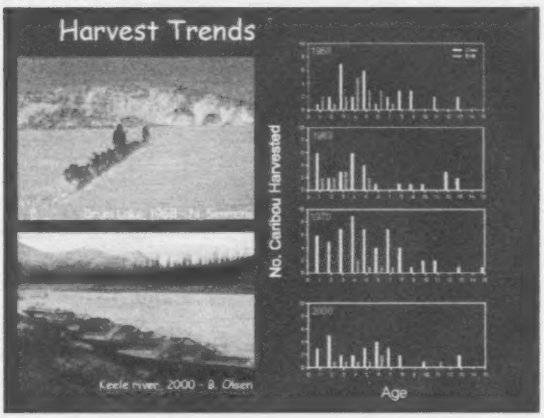


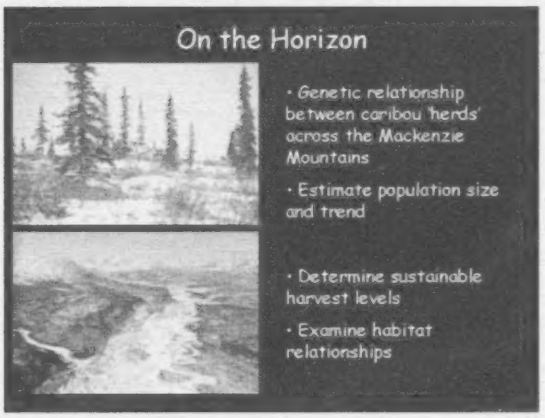




Population Status of Woodland Caribou Herds in the Mackenzie Mountains, NWT

Herd	Year	Type	Reference	No. Classified	Bulls:100 cows	Calf:100 cows
Bonnet Plume						
	2000	ground	Shaw & Benn 2002	360	200	45
Redstone						
	1999	ground	Veitch et al. 2000	2661	42	28
	2000	aerial	Olsen 2000	665	51	20
South Nahanni						
	1995	aerial	Gunderson & Manseau 2000	813	37	17
	1996	aerial	Gunderson & Manseau 2000	739	47	20
	1997	aerial	Gunderson & Manseau 2000	733	32	26
	2000	aerial	Gunn et al. in Prep.	549	33	15
	2001	aerial	Gunn et al. 2002	781	40	10

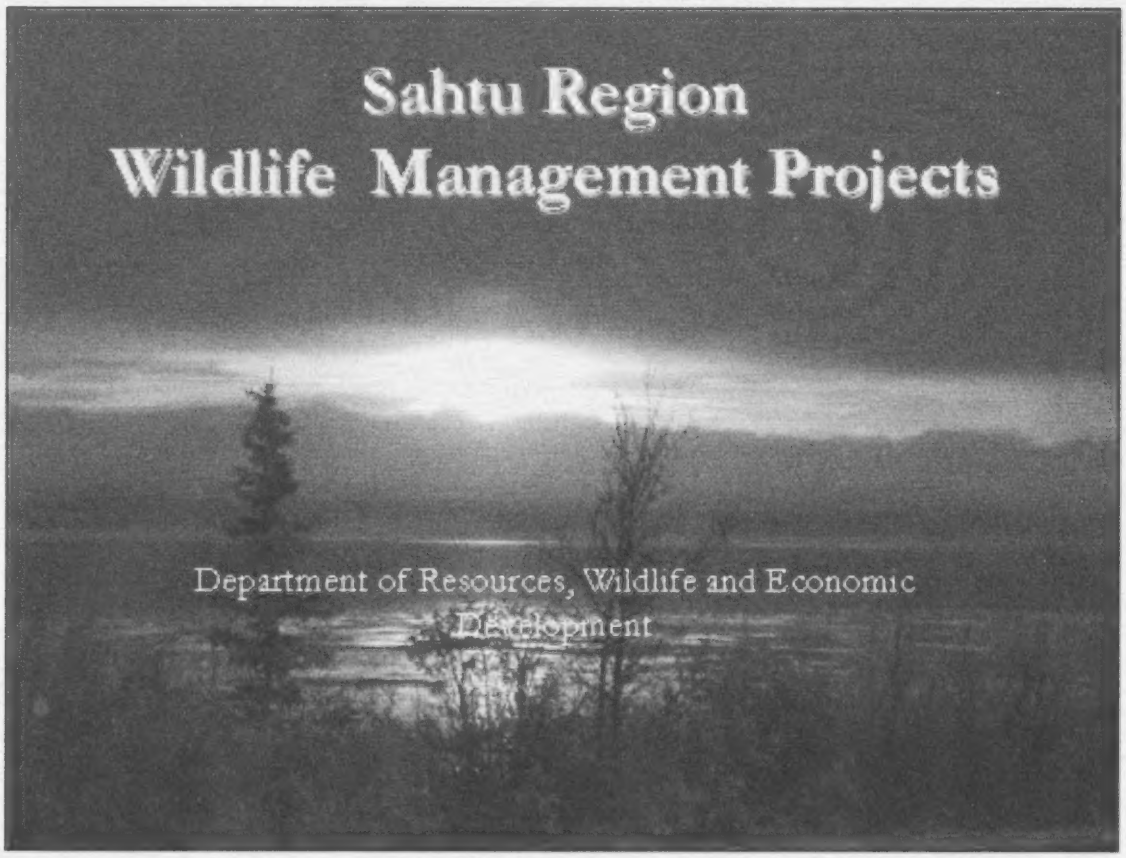

Harvest Trends
Keele river, 2000 - B. Olsen
No. Caribou Harvested
Age


On the Horizon
• Genetic relationship between caribou 'herds' across the Mackenzie Mountains
• Estimate population size and trend
• Determine sustainable harvest levels
• Examine habitat relationships

Appendix 6.

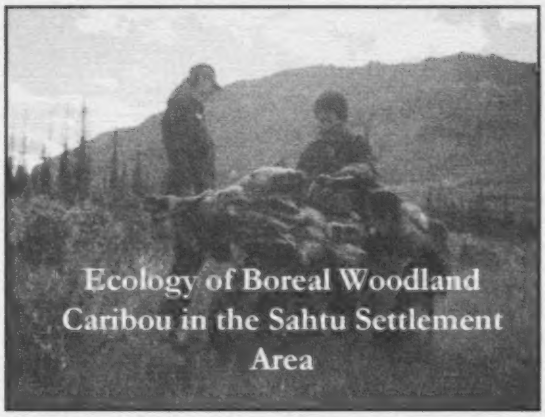
Sahtu Region Wildlife Management Projects

Presented by Alasdair Veitch, RWED Norman Wells

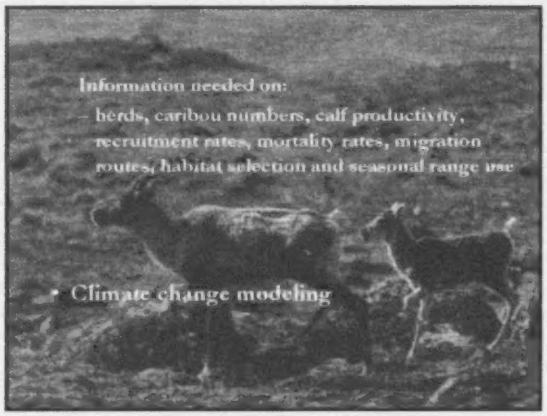


Sahtu Region Wildlife Management Projects

Department of Resources, Wildlife and Economic Development



Ecology of Boreal Woodland Caribou in the Sahtu Settlement Area

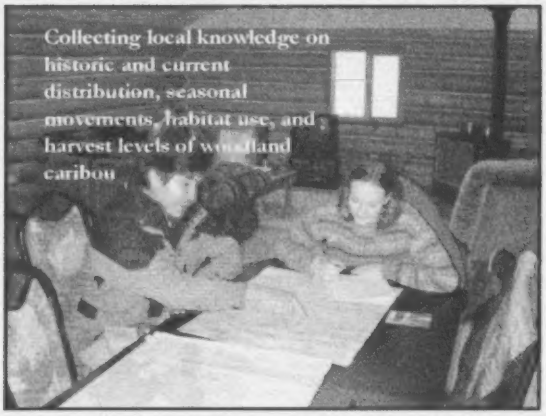


Information needed on:

- herds, caribou numbers, calf productivity, recruitment rates, mortality rates, migration routes, habitat selection and seasonal range use

- Climate change modeling

Traditional Knowledge about Boreal Woodland Caribou in the North Mackenzie River Valley



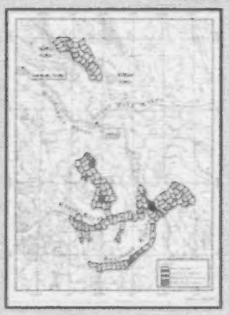
Collecting local knowledge on historic and current distribution, seasonal movements, habitat use, and harvest levels of woodland caribou

Traditional Knowledge Partnerships

- Approximately 120 Gwich'in, Sahtu, and Inuvialuit elders contributed to this project

- Partnerships included the Gwich'in RRB, Sahtu RRB, elders and hunters, Habitat Stewardship Fund (Canadian Wildlife Service) and DRWED Sahtu

Moose Surveys in the Sahtu Settlement Area



- In the Sahtu, moose are the second most important food source after barren-ground caribou
- 227 moose were reported harvested in 1999 (Sahtu Settlement Harvest Study)

Moose Surveys in the Sahtu

- Surveys have been ongoing since 1984
- Surveys estimate current numbers of moose and harvest trends in the Fort Good Hope, Norman Wells, and Tulita study areas
- Surveys can be used by local RRC's and the SRRB for necessary changes in harvest

Wildlife Monitoring Along the Norman Wells-Wrigley Oil Pipeline Right-of-Way

Oil Pipeline Right-of-Way

- 1999 – present
- Maintenance crew of the pipeline records wildlife observations
- Observations are made:
  - one day a week
  - 160km/hr at 60 m above ground level
  - 10 m wide swath

Muskox Inventory and Range Distribution

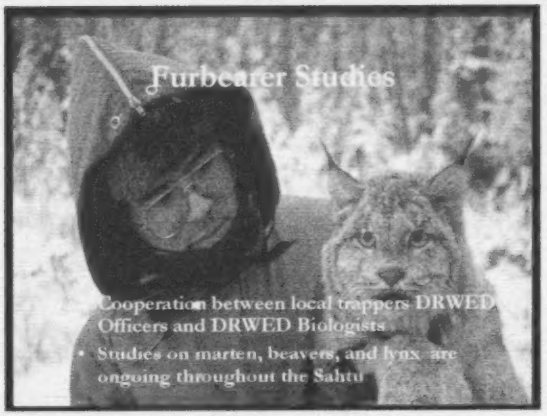
Surveys and Inventories

- 1997 – surveys estimated there were 1460 muskoxen within the study area
- 2001 – muskoxen were surveyed south of the Hare Indian River west of Great Bear Lake to the Bear River, over 200 muskoxen were observed

- 2003 – proposal for an aerial survey of entire Sahtu Settlement Area
- Aerial surveys are planned for once every five years

Traditional Knowledge and Partnerships

- We are collecting TK and stories about muskoxen in the Sahtu
- Partnerships include the SRRB and RRC's, pilots, local hunters, outfitters and guides

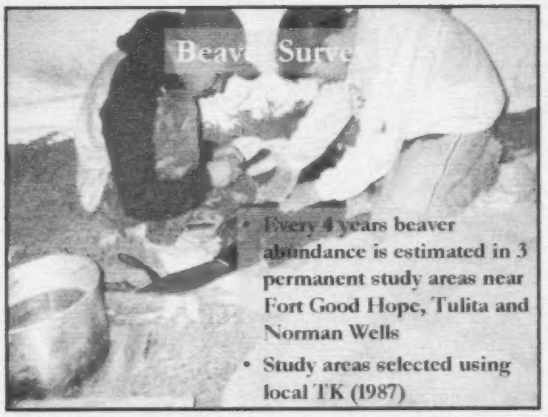


Furbearer Studies

- Cooperation between local trappers DRWED Officers and DRWED Biologists
- Studies on marten, beavers, and lynx are ongoing throughout the Sahtu

Marten Study

- Traditional Knowledge about marten gathered in 1997
- Trappers from Colville Lake and Fort Good Hope provide carcasses
- Obtain information on sex, age, reproductive status, and basic body measurements

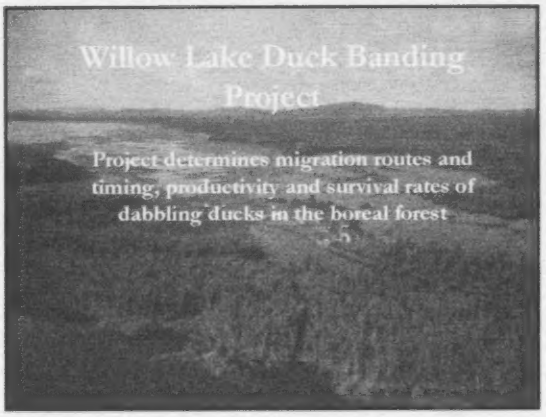


Beave Surve

- Every 4 years beaver abundance is estimated in 3 permanent study areas near Fort Good Hope, Tulita and Norman Wells
- Study areas selected using local TK (1987)

Lynx Study

- Lynx pelts are measured in DRWED offices
- Pelt measurements determine the proportion of adults and juveniles in the harvest
- An adult lynx measures 88cm or more from the tip of the nose to the base of the tail



Willow Lake Duck Banding Project

Project determines migration routes and timing, productivity and survival rates of dabbling ducks in the boreal forest

Willow Lake Duck Banding Project

- Started in 1995
- An average of 1401 ducks have been banded each year since 1995
- Tulita RRC is contracted to provide a crew every year

How Does the Project Work?

- A banding crew sets up an outpost camp at Willow Lake each August
- Crew [illegible] employees of the Tulita RRC, DRWED [illegible] US Fish and Wildlife Service (USFWS)
- Birds are baited and captured in funnel traps
- Metal leg bands with a 1-800 number are placed on the birds

Christmas Bird Count

- Done annually across North America since 1900!
- Norman Wells site begun in 2000
- As of 2001, 1880 sites in Canada, the United States and the Caribbean have been covered
- Volunteers record species and number of birds observed during one day between December 14th and January 5th

Breeding Bird Survey

- Annual tally of birds breeding along a registered 40km line between Norman Wells and Tulita (Vermillion Creek)
- Survey data are given to Bird Studies Canada as part of a continental survey

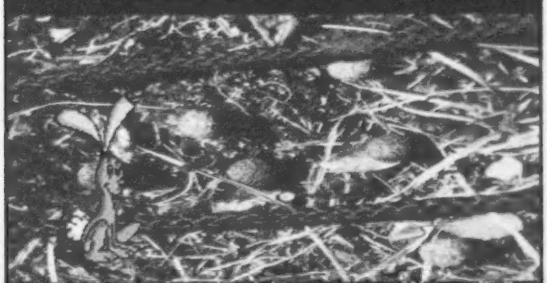
Population Trends of Small Mammals and Snowshoe Hares

- Ongoing studies on population changes
- Population changes can be used as indicators of environmental change
- Project coordination by DRWED (Yellowknife)

Small Mammal Survey

- Small mammals are caught using Sherman live traps
- Red-backed voles are the main species caught
- Study is done annually during one week in August
- Low cost with important results!

Snowshoe Hare Survey



- 4 permanent sites in hare habitat near town of Norman Wells
- Sampled 1day the 1st week of June annually
- Fecal pellets in 20 plots from each site are counted

Baseline Studies of Wildlife Health

- Need to collect parasite and disease information to create a current baseline of average wildlife health
- This baseline will allow for future wildlife health comparisons
- Effect of environmental changes on wildlife
- Identify potential risks of introduction and spread of diseases
- Identify possible human health risks
- Increase public awareness

Non-resident Hunter Harvest Monitoring in the Mackenzie Mountains

- There has been sport hunting in the Mackenzie Mountains since 1965
- 8 outfitters operate in the Mackenzie Mountains
- NWT benefits from economic activity of non-resident hunters

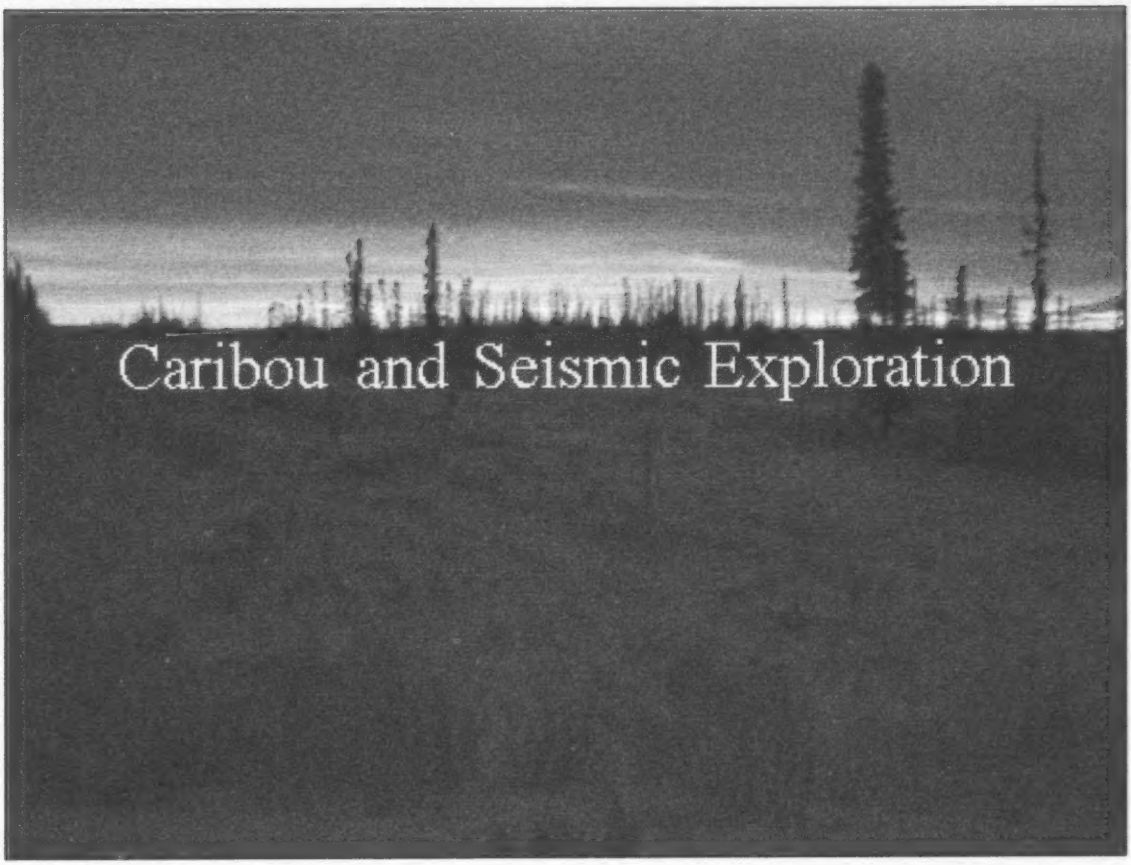
Objectives of Study

- Annually monitor and collect outfitted hunting information
- Make information available to interested organizations

Appendix 7.

Caribou and Seismic Exploration

Presented by Arianna Zimmer, RWED Norman Wells

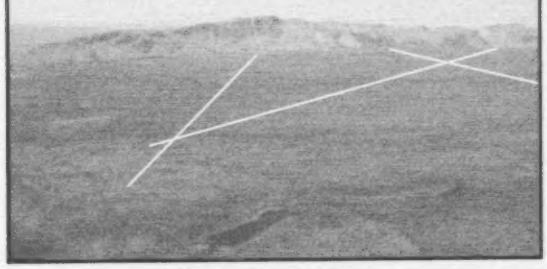


Caribou and Seismic Exploration

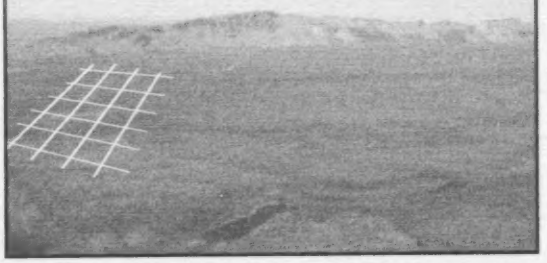
Seismic Exploration

- Used to get information on what is underground so exploration companies know where to drill for oil and gas
- 2 types:
  - 2D long lines are cleared
    - sometimes several hundred km long
  - 3D a grid is cleared
    - lines are shorter, but close together and cross each other

2D Seismic



3D Seismic



How Does a Seismic Line Affect Caribou

- While people are working, noise and equipment scares them away
- After the work is done
  - More caribou are killed by wolves because wolves travel fast and easily on cleared lines
  - More caribou can be killed by hunters because it is easier to get to them
  - Caribou try to stay away from the cleared lines

Cumulative Effects

- One seismic line only has a small effect on a few caribou
- The effect of many seismic lines can add up
  - This is what people call *cumulative effects*

Experience in Northern Alberta

- In Northern Alberta, where there are many seismic lines, biologists are studying the cumulative effects on caribou and have found that there are less and less caribou
- Some of the reasons are:
  - Caribou are not as healthy because of the stress of trying to stay away from all the seismic lines
  - Caribou have fewer calves
  - More caribou are killed by wolves and humans

Should We Be Concerned?

- As long as caribou have places to go away from seismic lines, they should be ok
- If more and more lines are cleared and nothing is done about it, there will be less places for caribou to go
- This will mean fewer caribou
- We are a long way from that situation today, but that could change if a pipeline is built and there is a lot more seismic exploration

What can we do?

- Make sure exploration companies choose ways of doing their work that will disturb caribou as little as possible (best practices)
- Keep an eye on how the caribou are doing
- Keep an eye on how many seismic lines are being cleared

Best practices

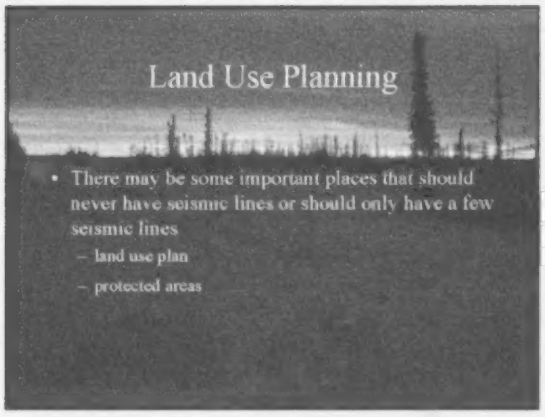
- Because of the land claim agreement, exploration companies have to make access agreements with land corporations before they can do work
- Land corporations could put rules in these agreements for the company to use best practices so caribou are disturbed as little as possible
  - Sometimes best practices cost more than other ways of doing things, so companies might not want to do them unless the agreement says they have to

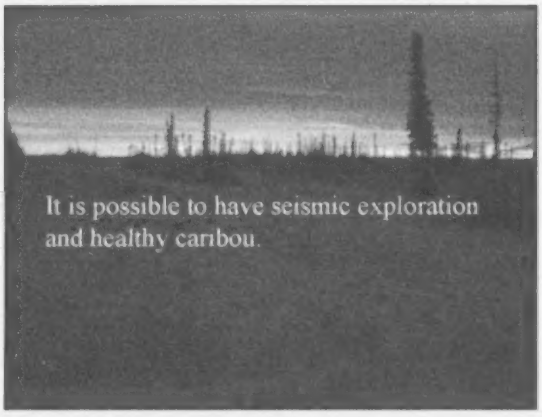
Keeping an eye on the caribou

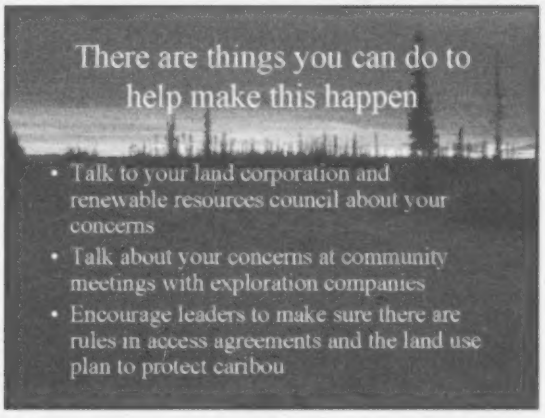
- If you notice changes with the caribou you are concerned about, you can talk with other people, and tell your renewable resource council and land corporation

Keeping an eye on the number of seismic lines

- Right now, some companies don't want to give information on where their seismic lines are located
- This information is needed to make maps so people will know if there are too many seismic lines in some areas
- Land corporations could put rules in access agreements so that companies give them the GIS information on where they put their seismic lines


Land Use Planning
• There may be some important places that should never have seismic lines or should only have a few seismic lines
– land use plan
– protected areas

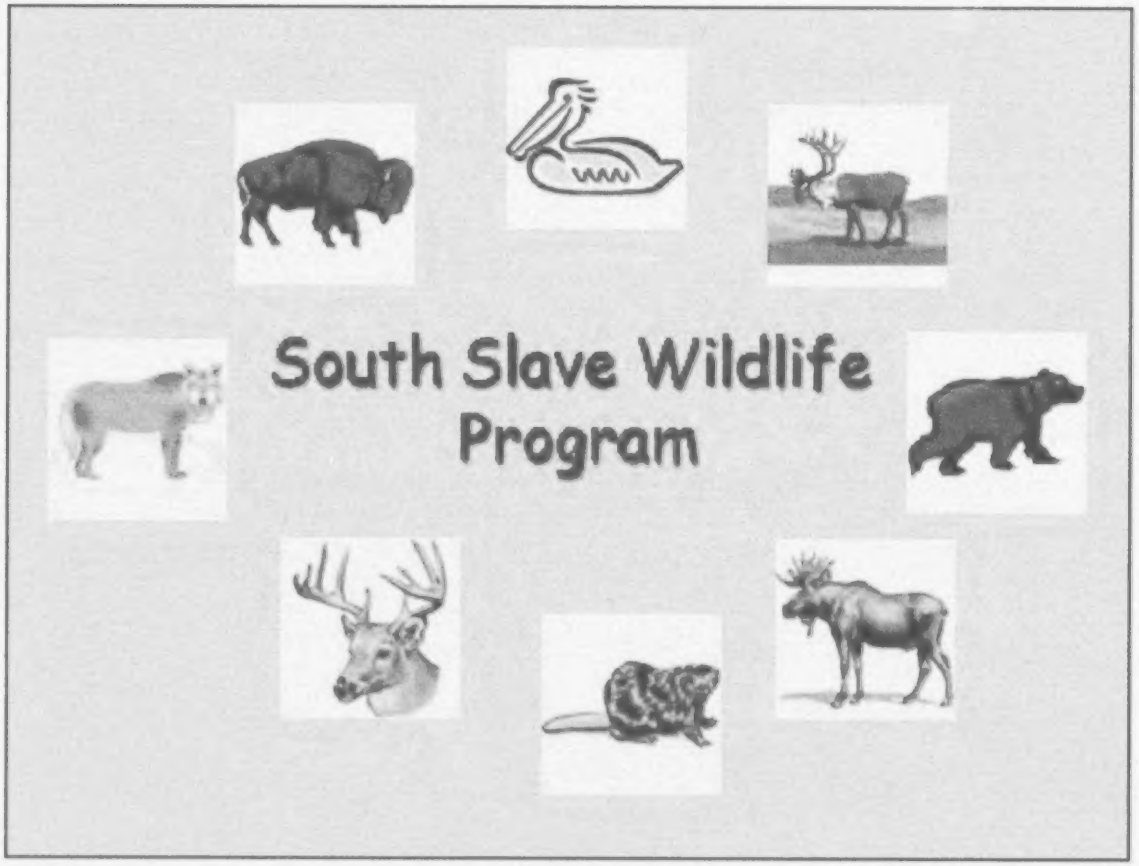

It is possible to have seismic exploration and healthy caribou.

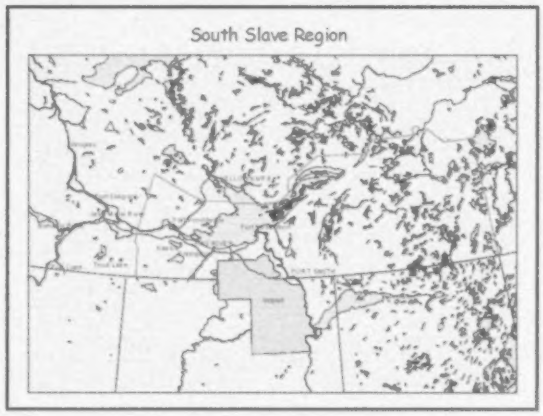

There are things you can do to help make this happen
• Talk to your land corporation and renewable resources council about your concerns
• Talk about your concerns at community meetings with exploration companies
• Encourage leaders to make sure there are rules in access agreements and the land use plan to protect caribou

Appendix 8.

South Slave Wildlife Program

Presented by Deborah Johnson, RWED Fort Smith



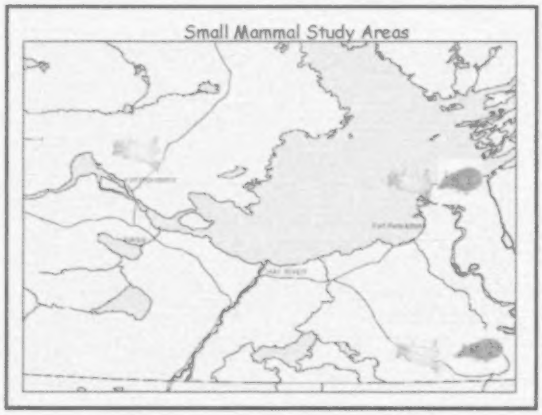


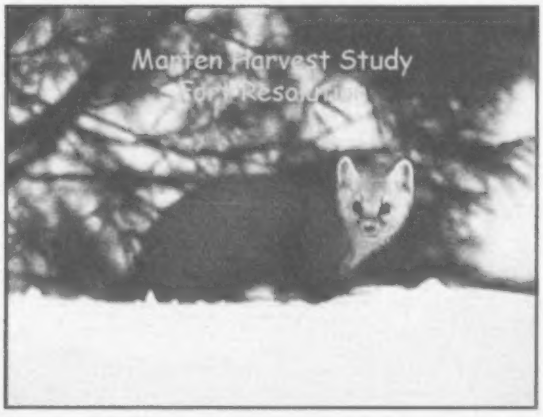
Small Mammal Study

Where?
NWT- wide

What?
Look at changes in small mammal abundance
- Snowshoe hare turd counts
- Small mammal trapping

Why?
Tool for predicting furbearer harvest potential





Marten Harvest Study

Collect marten carcasses from trappers

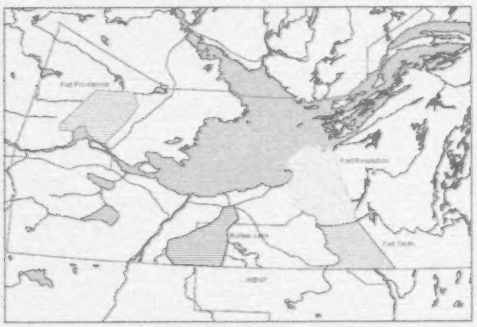
Age and sex ratios
Body condition
Winter diet

Trap-line management (see poster for more information)

Population Surveys
- Population estimate
- Age and sex composition
- Fort Providence (1991, 1994, 1997)
- Fort Resolution (1989, 1995)
- Fort Smith (1986, 1996)

Harvest statistics
- Buffalo Lake - 2002
- Fort Resolution/Fort Providence (1994 - 97)

Moose Survey Areas



Bison Projects - MBS

Projects

- General disease monitoring (hunter harvest)
  - TB, brucellosis, Johne's
- Annual anthrax monitoring
- Annual age and sex composition counts
- Population surveys (biannual up to 2000)
  - March 2003 next planned survey
  - 4 year survey interval

Potential Projects

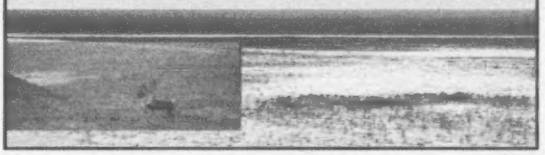
- Historical account of caribou (where they lived, numbers, habitats, etc.)
  - Traditional knowledge
- Factors affecting caribou
  - General body condition and disease monitoring (hunter harvest samples)
- Factors affecting habitat
  - Mapping linear features

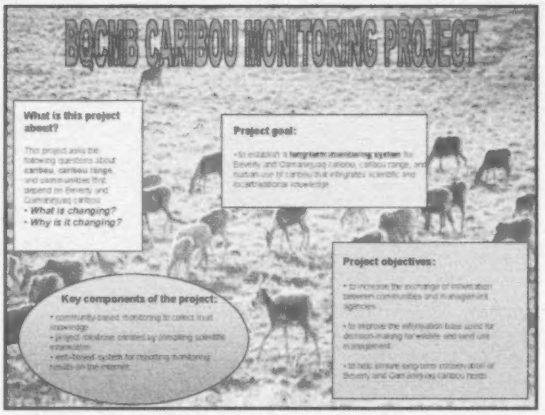
Potential Projects – cont'd

How are caribou populations doing in the NWT? /

How do caribou live in the NWT?

- Multi-year, multi- phase program – provide firm basis for future research needs
- Collaring animals
- Study areas - Cameron Hills, Horne Plateau and Trout Lake

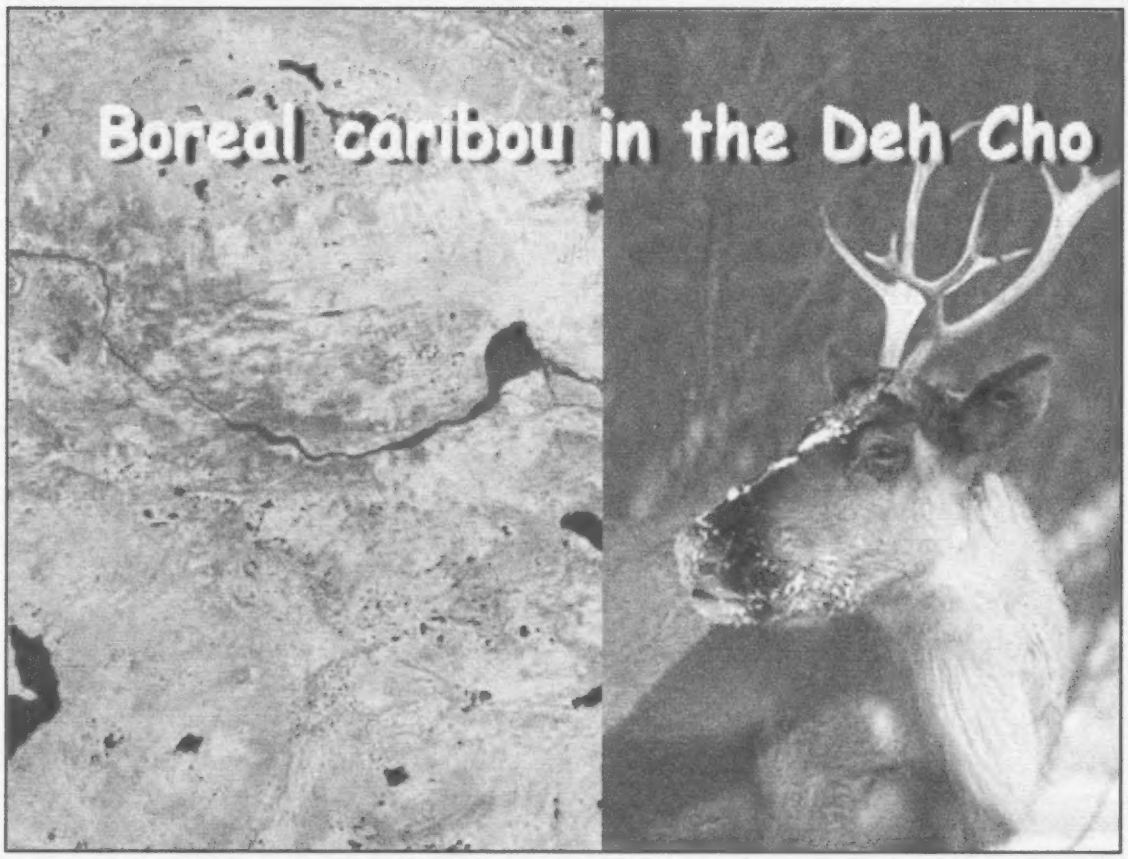


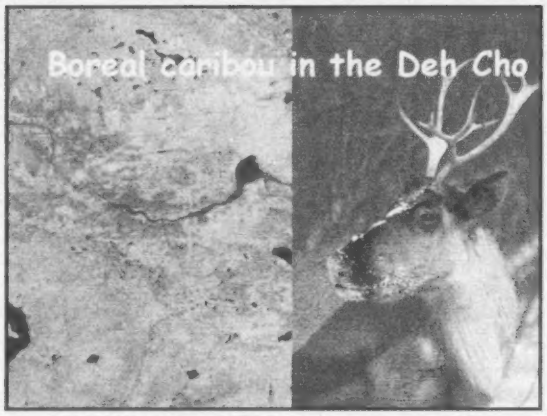

BOCHIB CARIBOU MONITORING PROJECT
What is this project about?
This project asks the following questions about caribou, caribou range, and communities that depend on Bluenose and Cape Bathurst caribou:
• What is changing?
• Why is it changing?
Project goal:
Project objectives:
Key components of the project:

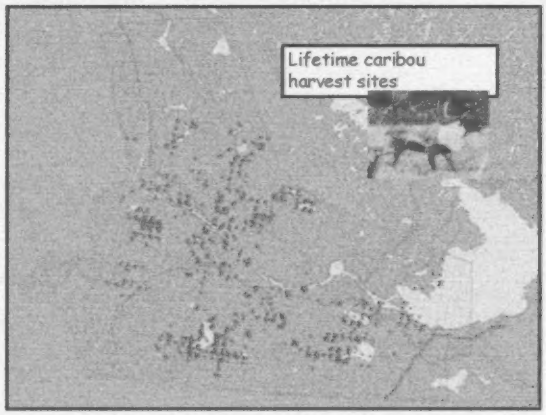
Appendix 9.

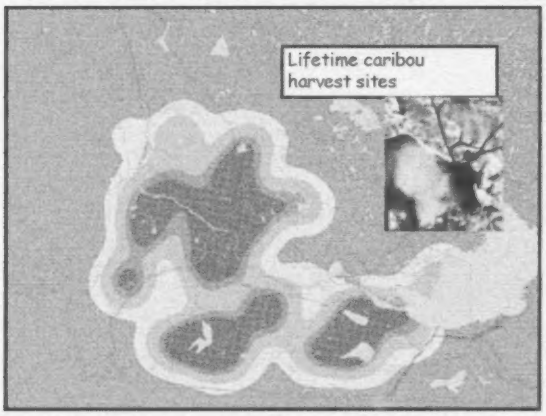
Boreal Caribou in the Deh Cho

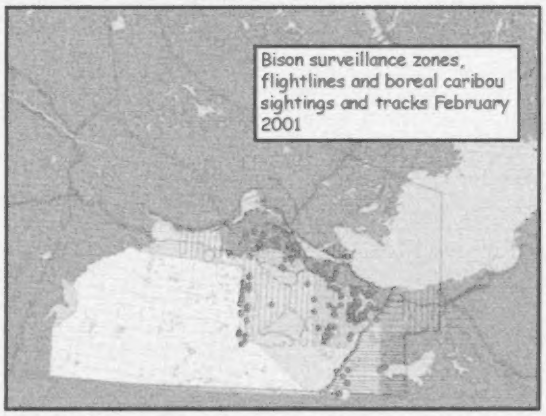
Presented by Anne Gunn, RWED Yellowknife



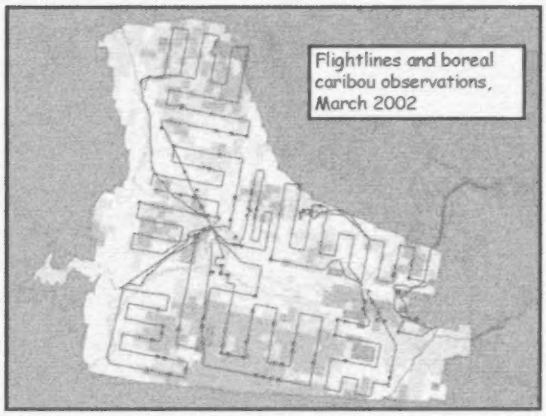

Boreal caribou in the Deh Cho

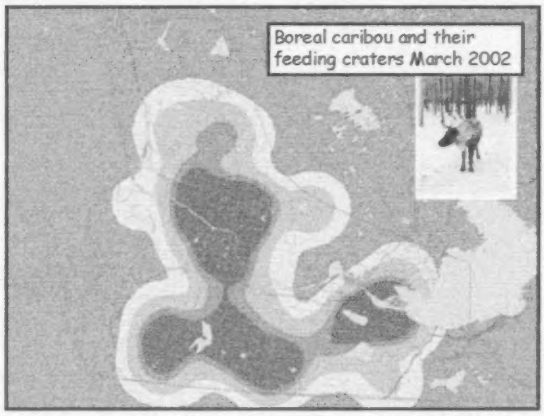

Lifetime caribou harvest sites

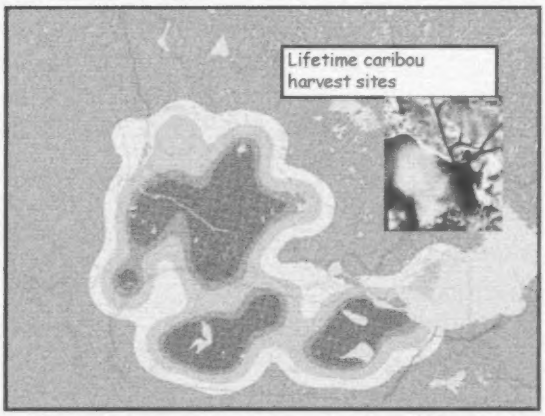

Lifetime caribou harvest sites

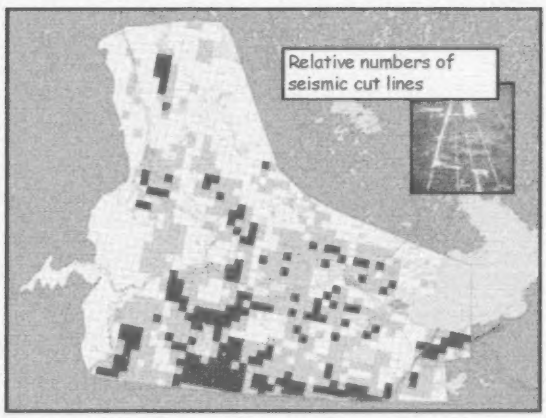

Bison surveillance zones, flightlines and boreal caribou sightings and tracks February 2001

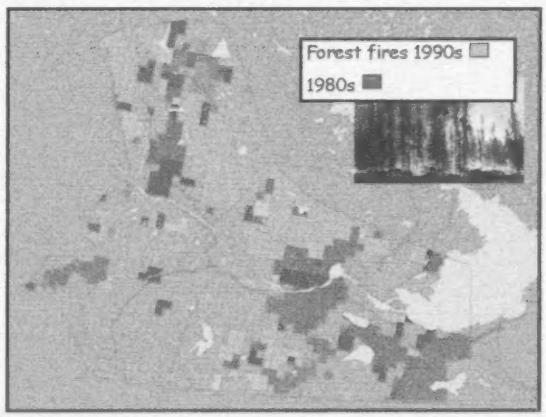
Predicting where boreal caribou may be found

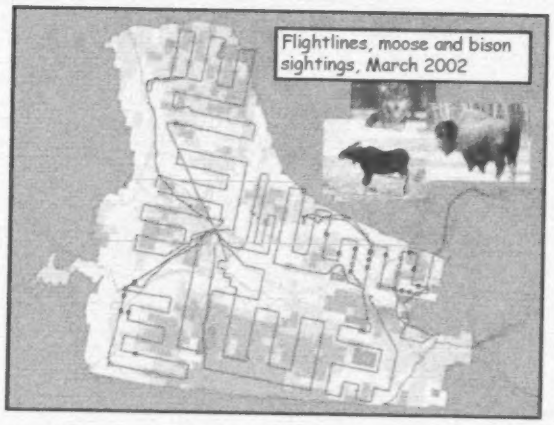

Flightlines and boreal caribou observations, March 2002

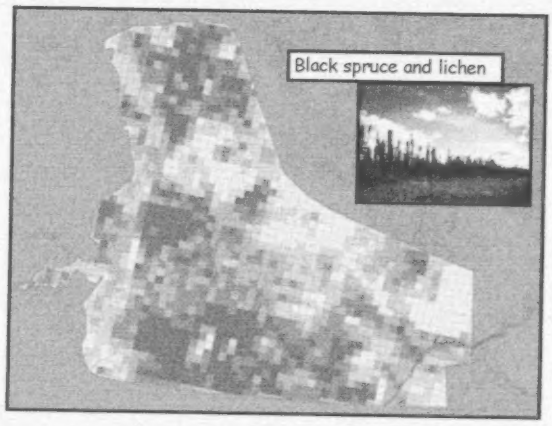

Boreal caribou and their feeding craters March 2002

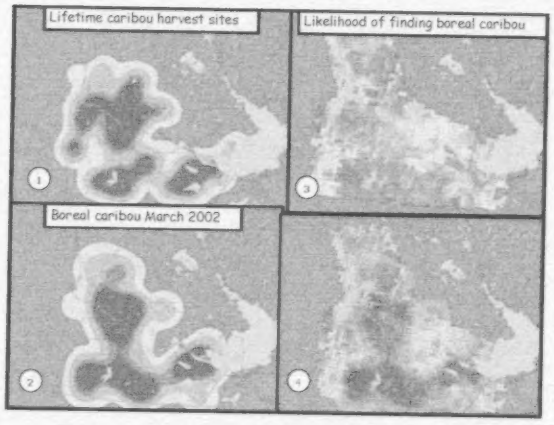

Lifetime caribou harvest sites


Relative numbers of seismic cut lines


Forest fires 1990s
1980s


Flightlines, moose and bison sightings, March 2002

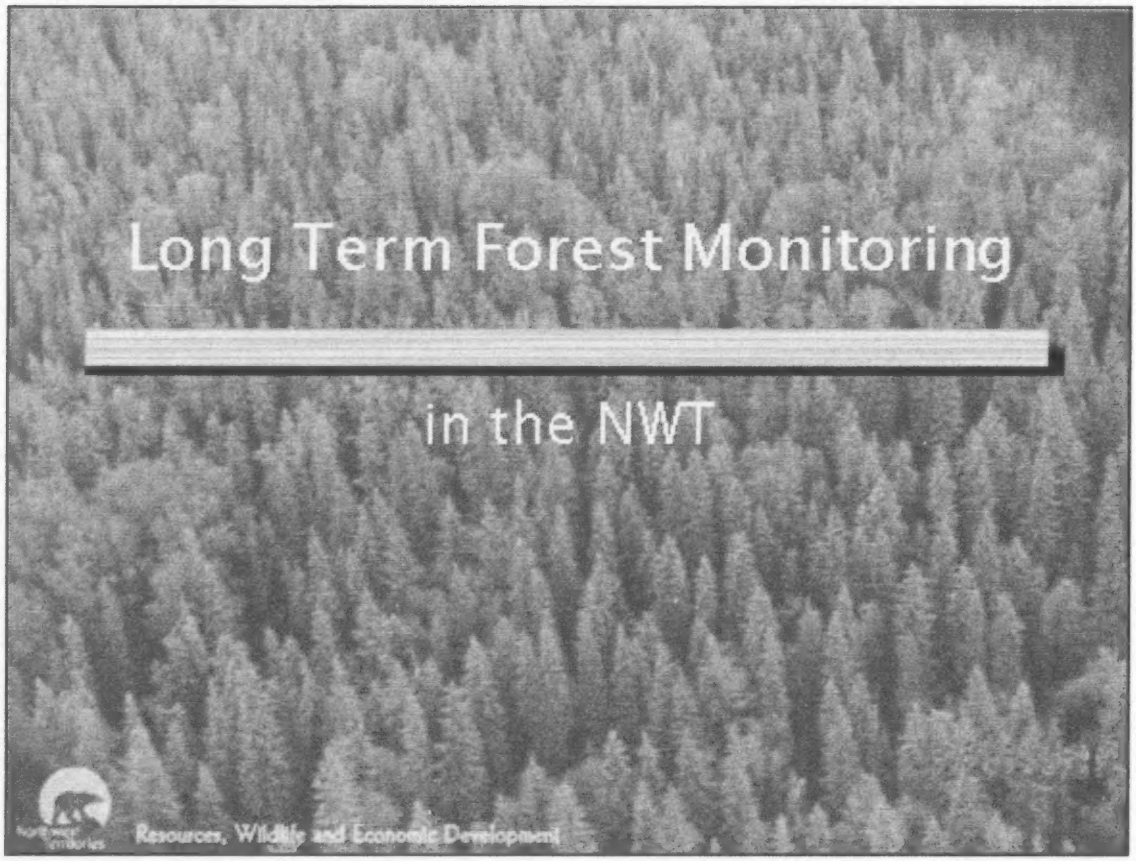

Black spruce and lichen

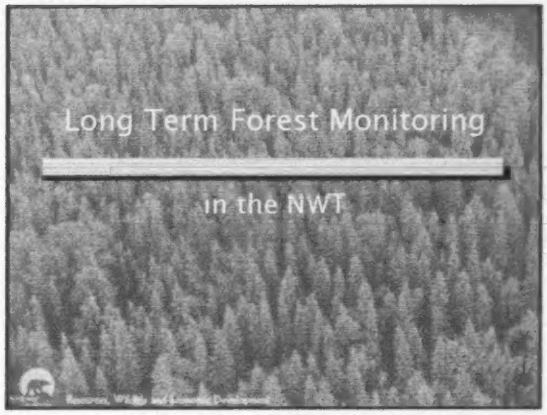

Lifetime caribou harvest sites
1
Likelihood of finding boreal caribou
3
Boreal caribou March 2002
2
4

Appendix 10.

Long Term Forest Monitoring in the NWT

Presented by Tom Chowns, RWED Hay River





Purpose of Meeting

- Permanent Monitoring Plot Program
- Program Objectives
- Forest resource use
- Information needs
- What information will PMPs provide?
- How will they be established?
- Program status

Permanent Monitoring Plots

- Program covers all of NWT
- Permanent plots provide forest and vegetation information over long periods of time
- Locations will be randomly selected from a 20 km grid covering the entire NWT
- Same location on the ground is measured every 5 to 10 years indefinitely

PMP Program Objectives

- Collect information on forest growth and succession
  - Measure rates of growth and regeneration
  - Assess productivity of forest
  - Determine succession patterns
  - Predict impact of forest related activities

PMP Program Objectives

- NWT Cumulative Impact Monitoring
  - Creates NWT wide database of biophysical data
  - Gives baseline information for future studies
  - Monitor land use change and disturbances
  - Used for resource planning, cumulative effects assessments, cumulative impact monitoring
  - Build foundation to link with other values such as traditional and cultural land use, recreation and habitat

PMP Program Objectives

- National Reporting on Sustainability
  - Ties into other programs across Canada
  - National Forest Inventory
  - Criteria and Indicators
  - Climate Change/ Carbon Accounting
  - Biodiversity Convention

Forest Resource Use

- Fuel wood is a major component of use
- Log homes, cabins secondary use
- Potential for commercial use
- Traditional activities such as hunting, trapping
- Wildlife habitat

Forest Information Needs

- Determine projected use of fuel wood over the next five to ten years
- Determine impact of oil/gas on forest resource
- Estimate sustainable forest resource use
  - Commercial potential
  - Fuelwood
  - Other disturbances

Permanent Monitoring Plots

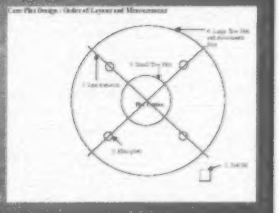
- Plan to establish 590 over the next 10-15 years

Region	G/Y PMPs	NFI PMPs	Total
Inuvik	65	19	84
Sahtu	55	44	99
North Slave	85	5	90
Deh Cho	130	37	167
South Slave	115	32	147
Total	450	137	587

- Access by helicopter, boat, and ATV
- Two people x one full day per plot to establish
- Should be established at the end of the growing season (late August)

Layout of the PMP

1. **Line Transects** – Measures course woody debris to estimate total above ground biomass.
2. **Mini Plots** - Measures seedlings and other plants 0.15 - 1.30 m in height for biomass and biodiversity measurements.
3. **Small Tree Plot** - Measures trees <9 cm diameter, shrubs, and tree stumps.
4. **Large Tree Plot** – Measures trees with diameter >= 9cm.
5. **Soil Pit** - Determines soil type, moisture and nutrient regime.
6. **Assessment Plot** - Reference area on which assessments, not measurements are made, eg. Snow damage, insect or disease impact.



Program Status

- NFI plot locations have been determined
- Some G/Y plot locations have been determined
- Established 16 PMPs summer 2002 in Sahtu
- 16 established in Deh Cho 2001
- 10 in Inuvik Region 2000-2002

Appendix 11.

Songbirds in the Liard Valley

Presented by Craig Machtans, CWS Yellowknife

Songbirds in the Liard Valley

Craig Machtans
Canadian Wildlife Service
Yellowknife

About the Canadian Wildlife Service.....

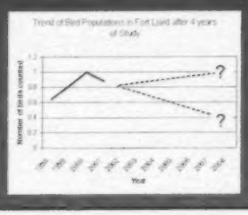
We are Canada's national wildlife agency and we handle wildlife matters that are the responsibility of the federal government. This includes the protection and management of migratory birds and nationally important wildlife habitat, endangered species, research on nationally important wildlife issues, control of international trade in endangered species, and international treaties.

What Are We Doing In The Liard Valley?

- Counting birds at ~200 locations
- Birds counted twice yearly for last 5 yrs
- Birds counted in different forest types
  - Old spruce, aspen, mixed forests
  - Young forests
  - Black-spruce bogs
  - Clearcuts

What is the Purpose of the Work?

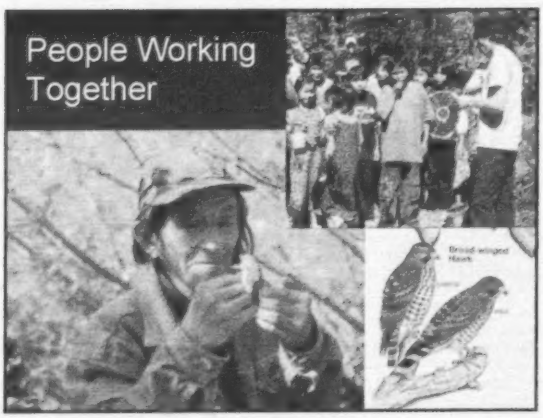
- Baseline data of national importance
- Assist with understanding impacts of development
- Eventually help provide population trends



What Have We Found?

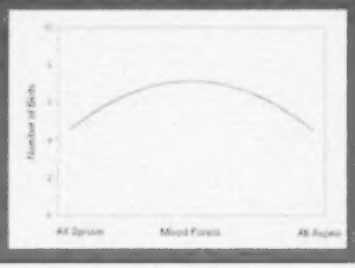
- Lots of birds!
  - 181 species, including migrants
  - About 24,000 observations in past 5 years
  - Many birds that are rare in other parts of the Northwest Territories
  - New birds not previously seen in the NWT

People Working Together



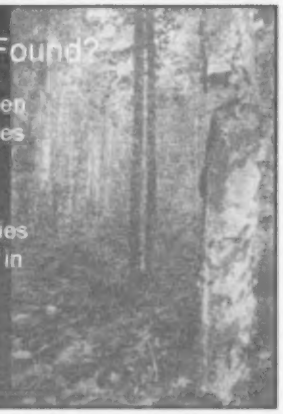
What Have We Found?

- Old forests with both spruce and aspen are very important to birds



What Have We Found?

- Differences between the NWT and places farther south
- Example: 44 species in NWT versus 66 in Saskatchewan (aspen forest)



What Else are We Doing?

- Studies of pipeline effects on birds being coordinated

What Else are We Doing?

- Studying the effect of cut lines (seismic lines) on birds

What Else are We Doing?

Breeding Bird Surveys (counts along roads)

- **Fort Liard, Fort Simpson, Fort Providence**
- **Up to 10 years of data already collected**

http://www.mp2-pwrc.usgs.gov/bbs/

What Else are We Doing?

- NWT/Nunavut Bird Checklist Program
- 65,000 bird records from both territories
- ~900 Checklists from the Deh Cho

http://www.pnr-rpn.ec.gc.ca/checklist

Other CWS Work

- Summary of all our activities in the north
  - Protected Areas
  - Waterfowl, shorebirds, other birds
  - Endangered species

http://www.pnr-rpn.ec.gc.ca/nature/d00s02.en.PDF

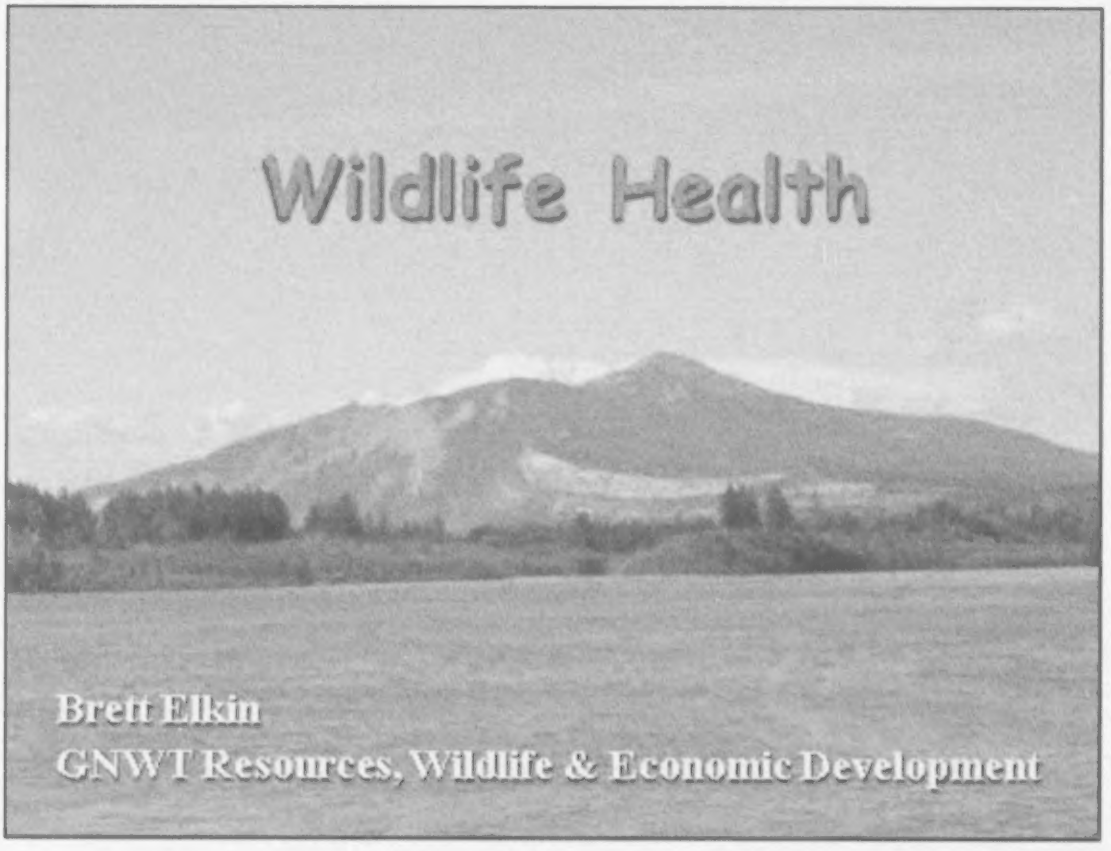
More Information? Want to Share Ideas

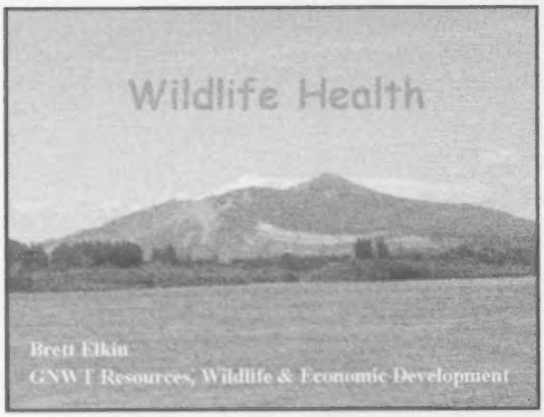
- Contact Craig Machtans
  - #301, 5204-50th Avenue, Yellowknife NT, X1A 1E2
  - Tel: 867.669.4771
  - Email: Craig.Machtans@ec.gc.ca
- See the Landbird Program Strategy on line
  - http://www.pnr-rpn.ec.gc.ca/nature/migratorybirds/lb/dc32s00.en.html
- Go to national CWS web page
  - http://www.cws-scf.ec.gc.ca/index_e.cfm

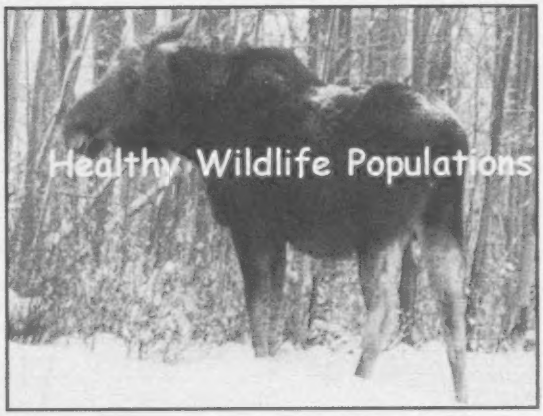
Appendix 12.

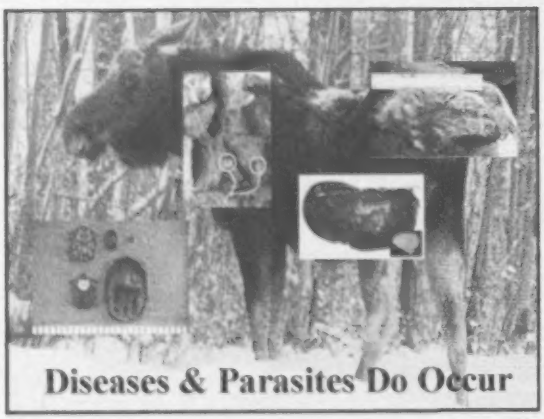
Wildlife Health

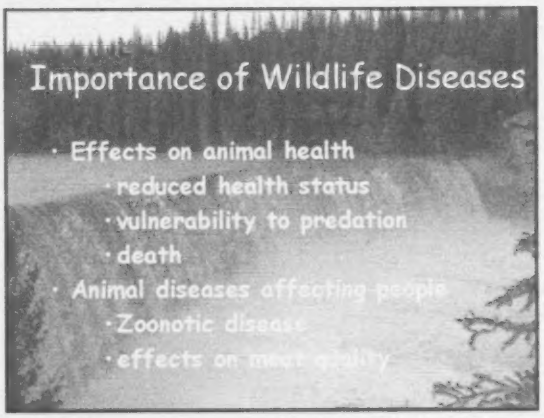
Presented by Brett Elkin, RWED Yellowknife

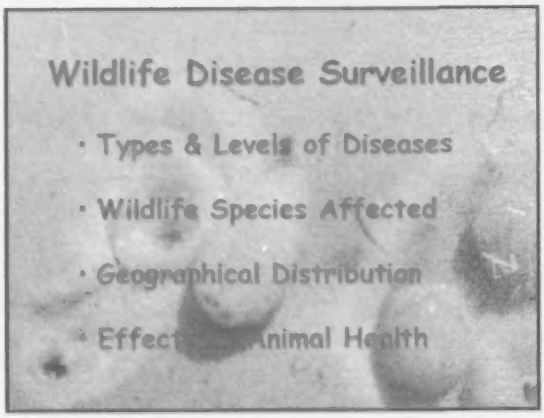


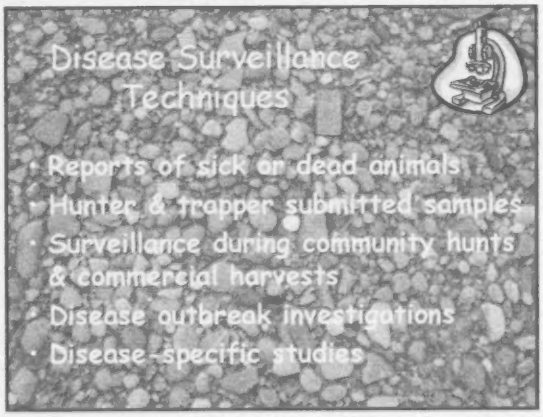

Wildlife Health
Brett Elkin
GNWT Resources, Wildlife & Economic Development

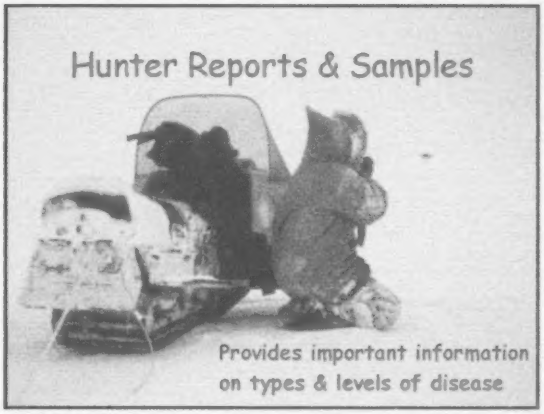

Healthy Wildlife Populations

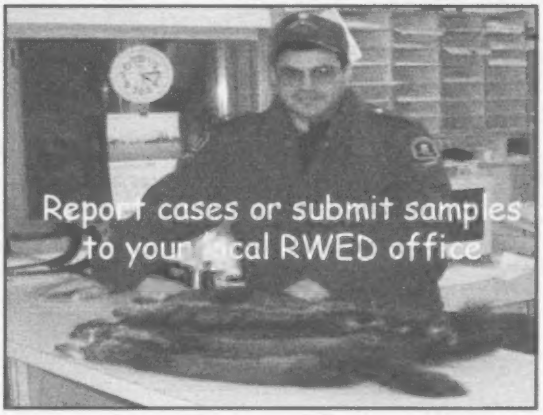

Diseases & Parasites Do Occur


Importance of Wildlife Diseases
· Effects on animal health
· reduced health status
· vulnerability to predation
· death
· Animal diseases affecting people
· Zoonotic disease
· effects on meat quality

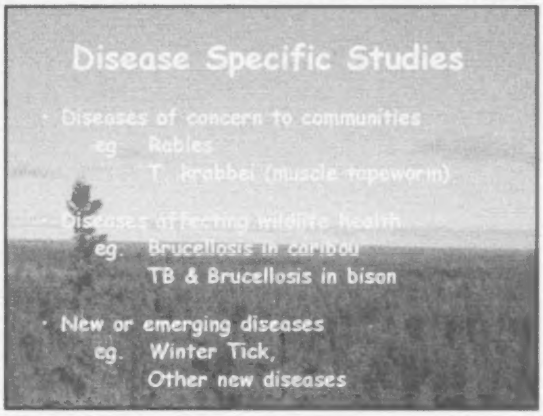

Wildlife Disease Surveillance
· Types & Levels of Diseases
· Wildlife Species Affected
· Geographical Distribution
· Effect Animal Health

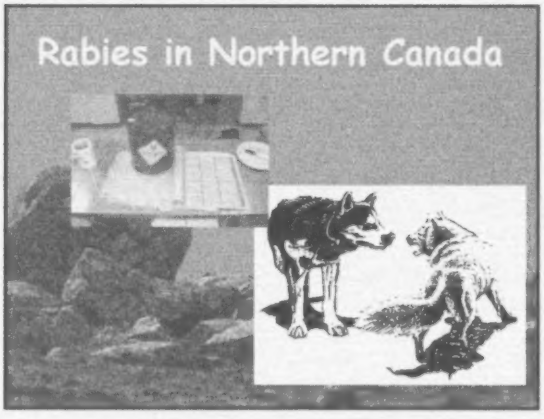

Disease Surveillance Techniques
· Reports of sick or dead animals
· Hunter & trapper submitted samples
· Surveillance during community hunts & commercial harvests
· Disease outbreak investigations
· Disease-specific studies

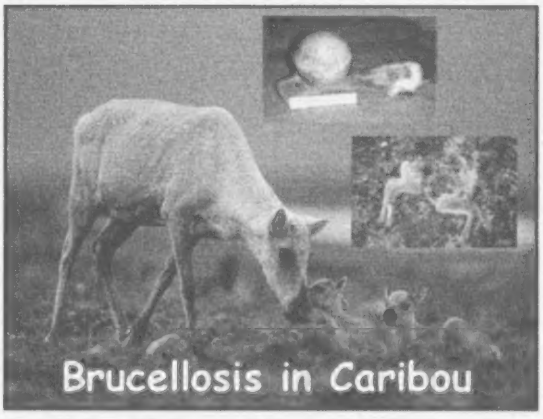

Hunter Reports & Samples
Provides important information
on types & levels of disease

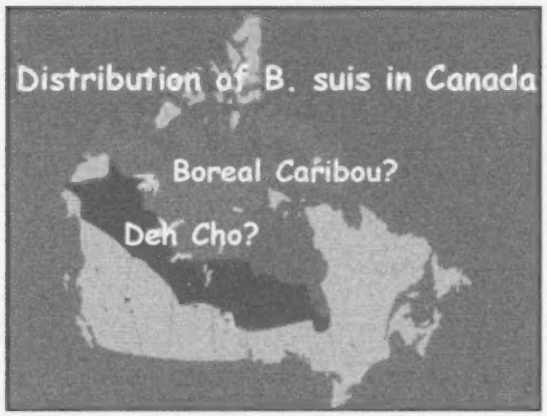

Report cases or submit samples
to your local RWED office

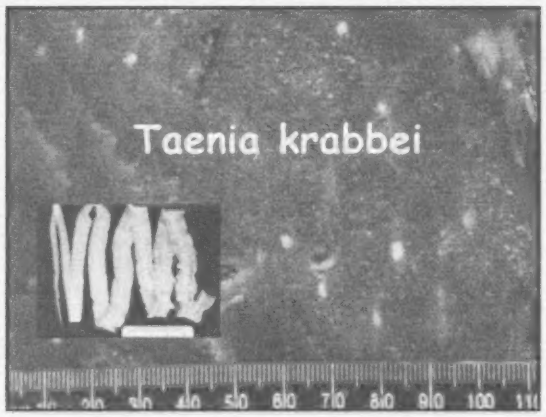
Community Hunts
&
Commercial Wildlife Harvests

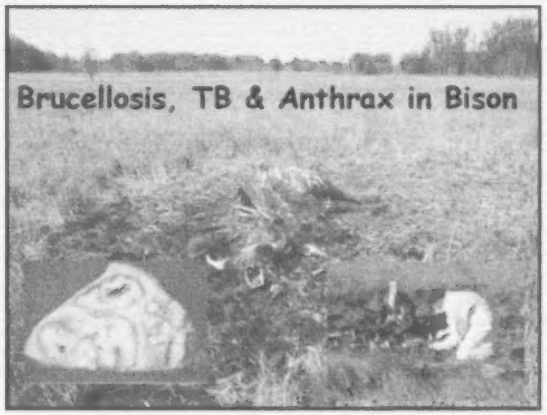

Disease Specific Studies
• Diseases of concern to communities
eg. Rabies
T. krabbei (muscle tapeworm)
• Diseases affecting wildlife health
eg. Brucellosis in caribou
TB & Brucellosis in bison
• New or emerging diseases
eg. Winter Tick,
Other new diseases

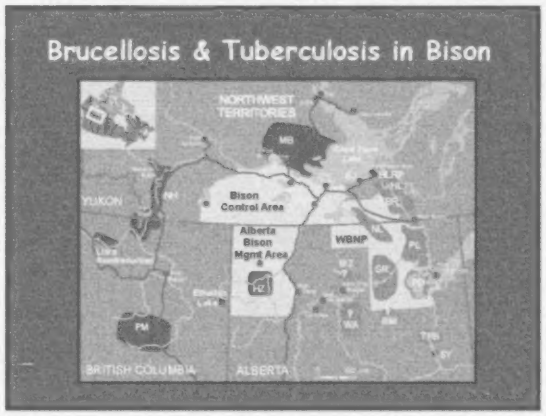

Rabies in Northern Canada

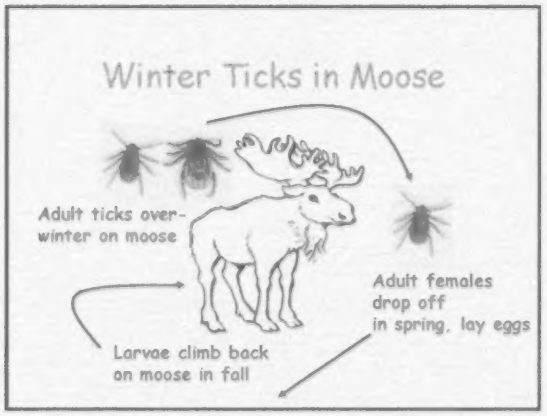

Brucellosis in Caribou

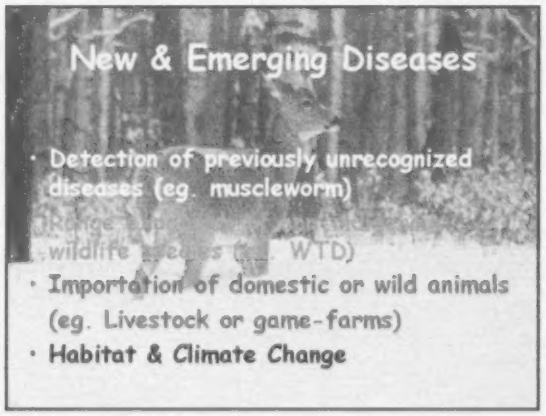

Distribution of B. suis in Canada
Boreal Caribou?
Deh Cho?

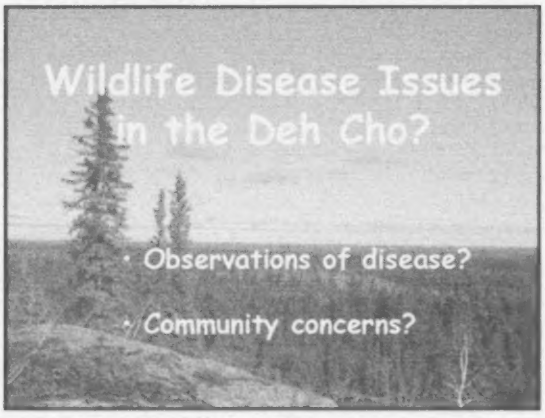

Taenia krabbei


Brucellosis, TB & Anthrax in Bison


Brucellosis & Tuberculosis in Bison
NORTHWEST TERRITORIES
YUKON
Bison Control Area
Alberta Bison Mgmt Area
WBNP
PM
BRITISH COLUMBIA
ALBERTA


Winter Ticks in Moose
Adult ticks over-winter on moose
Adult females drop off in spring, lay eggs
Larvae climb back on moose in fall

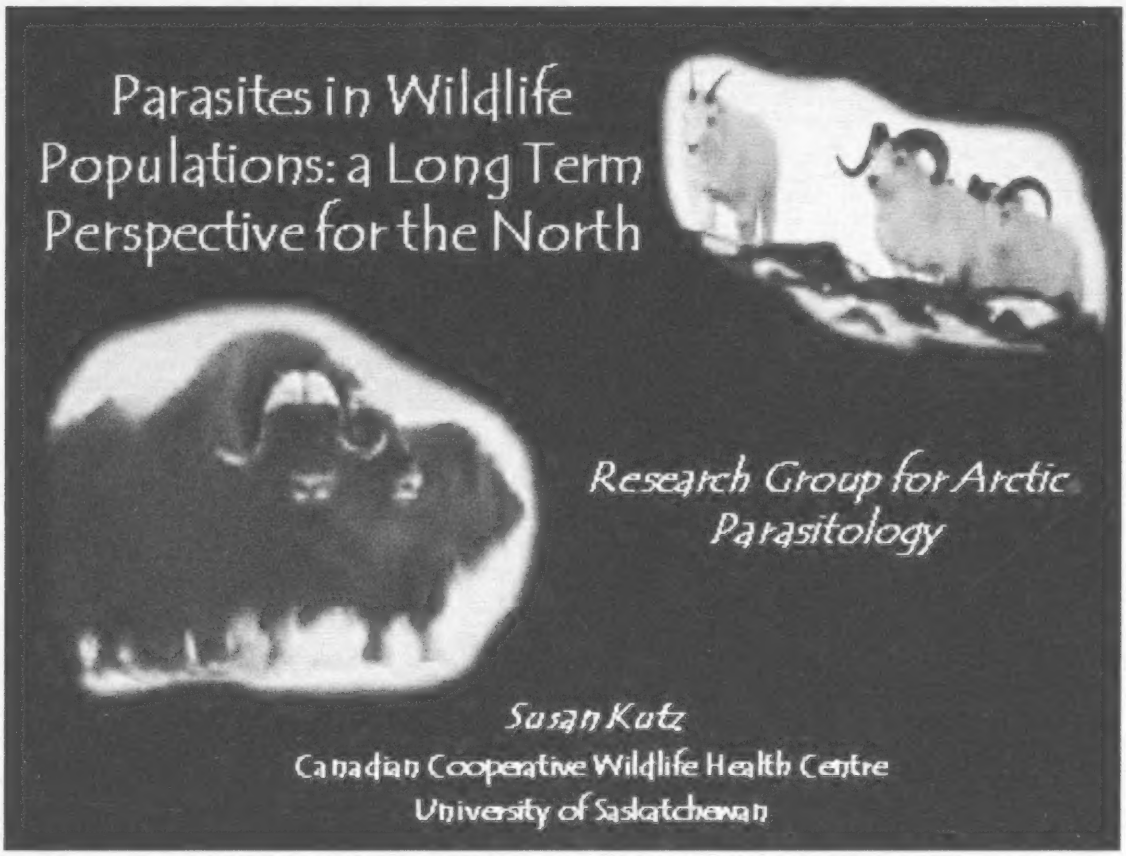

New & Emerging Diseases
• Detection of previously unrecognized diseases (eg. muscleworm)
• Importation of domestic or wild animals (eg. Livestock or game-farms)
• Habitat & Climate Change


Wildlife Disease Issues
in the Deh Cho?
• Observations of disease?
• Community concerns?

Appendix 13.

Parasites in Wildlife Populations: A Long Term Perspective for the North

Presented by Susan Kutz, University of Saskatchewan


Parasites in Wildlife Populations: a Long Term Perspective for the North
Research Group for Arctic Parasitology
Susan Kutz
Canadian Cooperative Wildlife Health Centre
University of Saskatchewan

Parasites in Wildlife Populations: a Long Term Perspective for the North

Research Group for Arctic Parasitology

Susan Kutz
Canadian Cooperative Wildlife Health Centre
University of Saskatchewan

What are Parasites?

- Depend on another organism (host) to live
- Have a negative effect on the host
- Heavy infections can result in death of the host

Why Study Parasites in Wildlife?

Wildlife is an essential resource

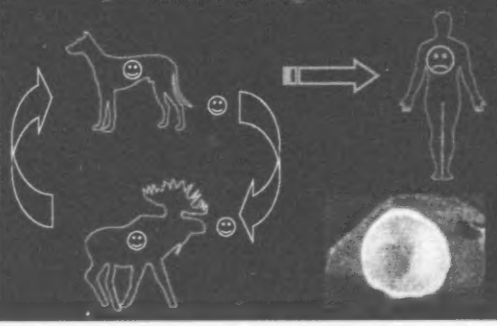
Parasites may affect the health of wildlife populations

Some wildlife parasites can infect humans

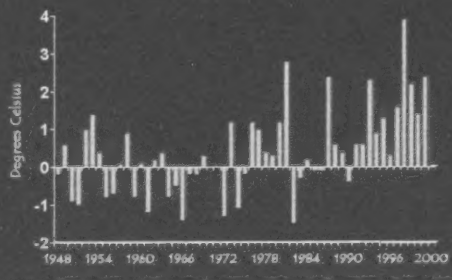
Warming climate and changing habitats will affect the balance between hosts and their parasites

Health of Wildlife Populations

Some Wildlife Parasites can Infect Humans e.g., *Echinococcus granulosus*



Warming Climate - Mackenzie Valley Temperature Trends

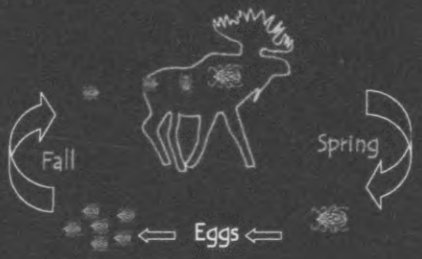


Warming Climate May Upset the Balance

- Movement of wildlife species to new regions = new parasites

- Increased survival and faster development of parasites = heavier infections of wildlife

An Example – Winter Ticks

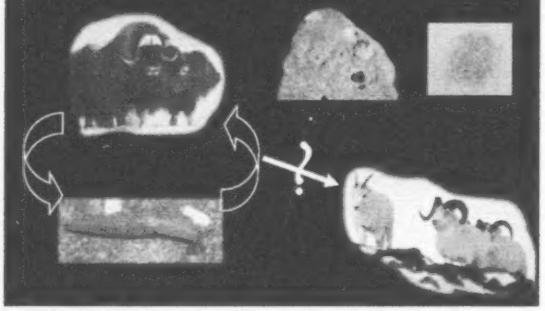


Where Do We Go From Here? Baselines!!

- What parasites?
- Who is infected?
- Where are the parasites found?
- How /when do hosts get infected?
- What are the effects on the host?

Predict emergence of parasites in new hosts and geographic regions

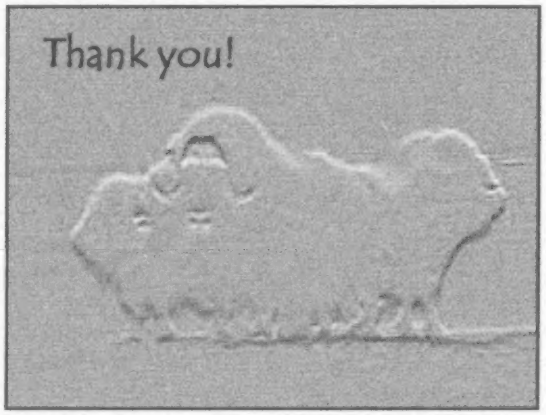
An Example - Moving Mainland Muskoxen and Lungworms



Current Projects

- Dall's sheep
- Banks Island muskoxen
- Bluenose caribou
- Lynx lungworms
- Sahtu Wildlife Health Project – Baselines!

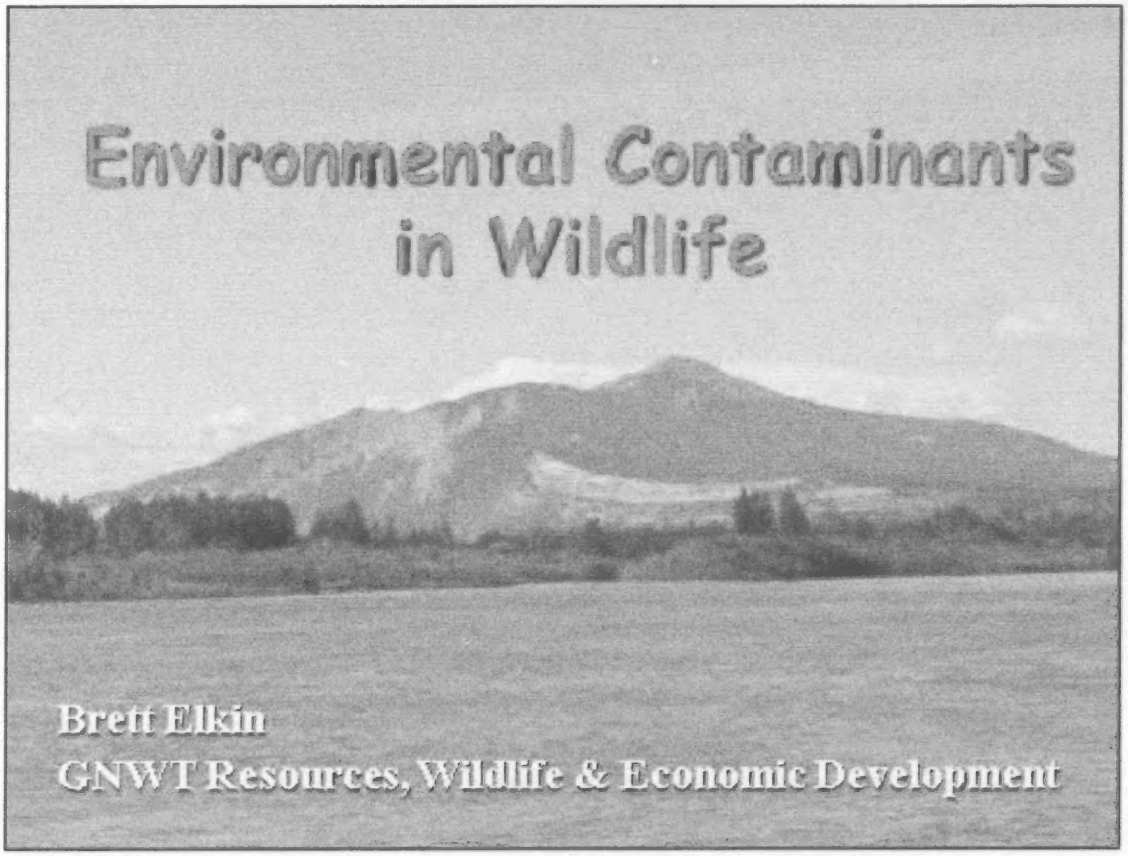
Thank you!

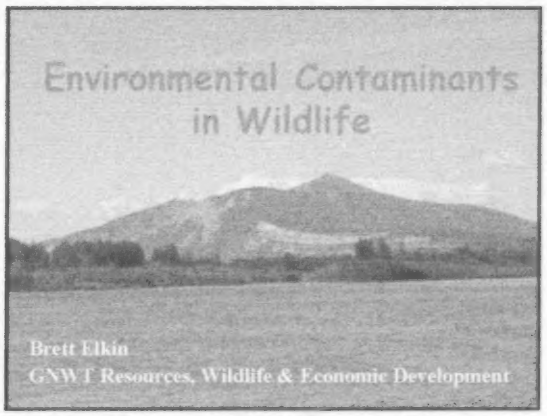


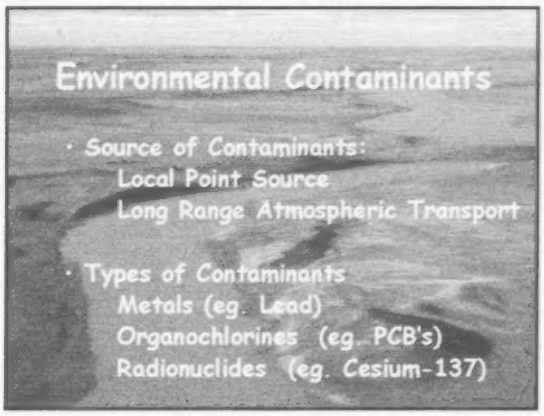
Appendix 14.

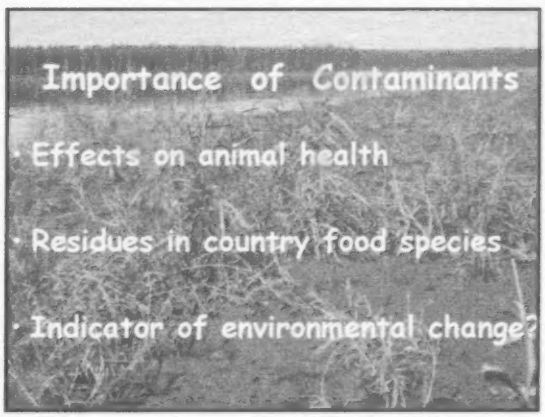
Environmental Contaminants in Wildlife

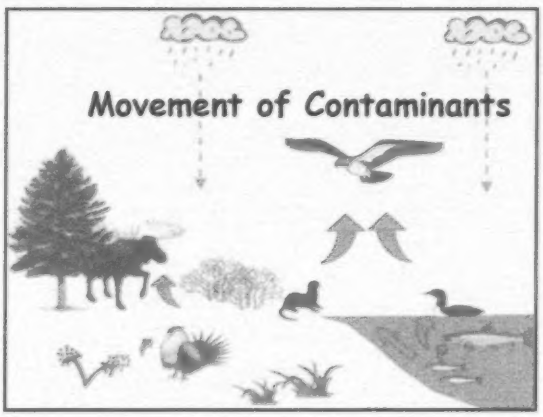
Presented by Brett Elkin, RWED Yellowknife

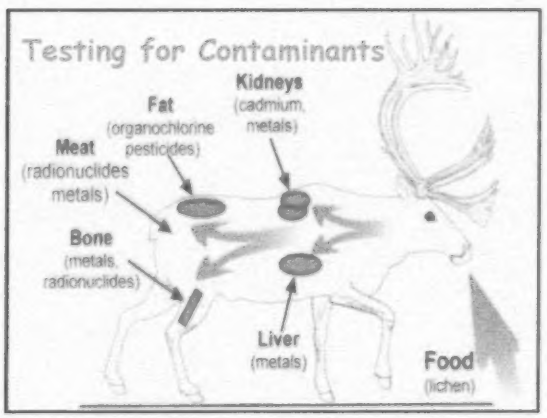


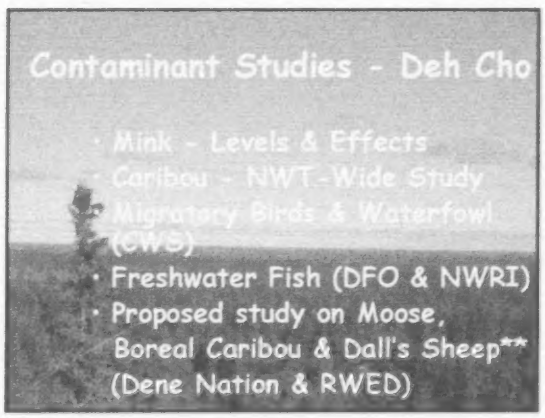

Environmental Contaminants
in Wildlife
Brett Elkin
GNWT Resources, Wildlife & Economic Development


Environmental Contaminants
· Source of Contaminants:
Local Point Source
Long Range Atmospheric Transport
· Types of Contaminants
Metals (eg. Lead)
Organochlorines (eg. PCB's)
Radionuclides (eg. Cesium-137)


Importance of Contaminants
· Effects on animal health
· Residues in country food species
· Indicator of environmental change?


Movement of Contaminants


Testing for Contaminants
Kidneys
(cadmium, metals)
Fat
(organochlorine pesticides)
Meat
(radionuclides metals)
Bone
(metals, radionuclides)
Liver
(metals)
Food
(lichen)


Contaminant Studies - Deh Cho
· Mink - Levels & Effects
· Caribou - NWT-Wide Study
· Migratory Birds & Waterfowl (CWS)
· Freshwater Fish (DFO & NWRI)
· Proposed study on Moose, Boreal Caribou & Dall's Sheep** (Dene Nation & RWED)

Contaminants in NWT Mink

- Liard, Slave & Mackenzie rivers
- Survey for organochlorine & metals
- Very low levels of contaminants
- No effects on health of NWT mink populations

Contaminants in Caribou

- NWT-wide survey
- Looked at levels of metals, radionuclides & organochlorines
- Very low levels of all contaminants
- No effects on caribou health
- Similar in boreal caribou, moose?

Denendeh Contaminant Study

- NWT-wide
- Moose, boreal caribou & Dall's sheep
- Levels of metals & radionuclides
- Co-ordinated by Dene Nation & regional aboriginal organizations
- Contacts: Chris Paci (Dene Nation)
  Brett Elkin (RWED)
  Nic Larter (RWED)

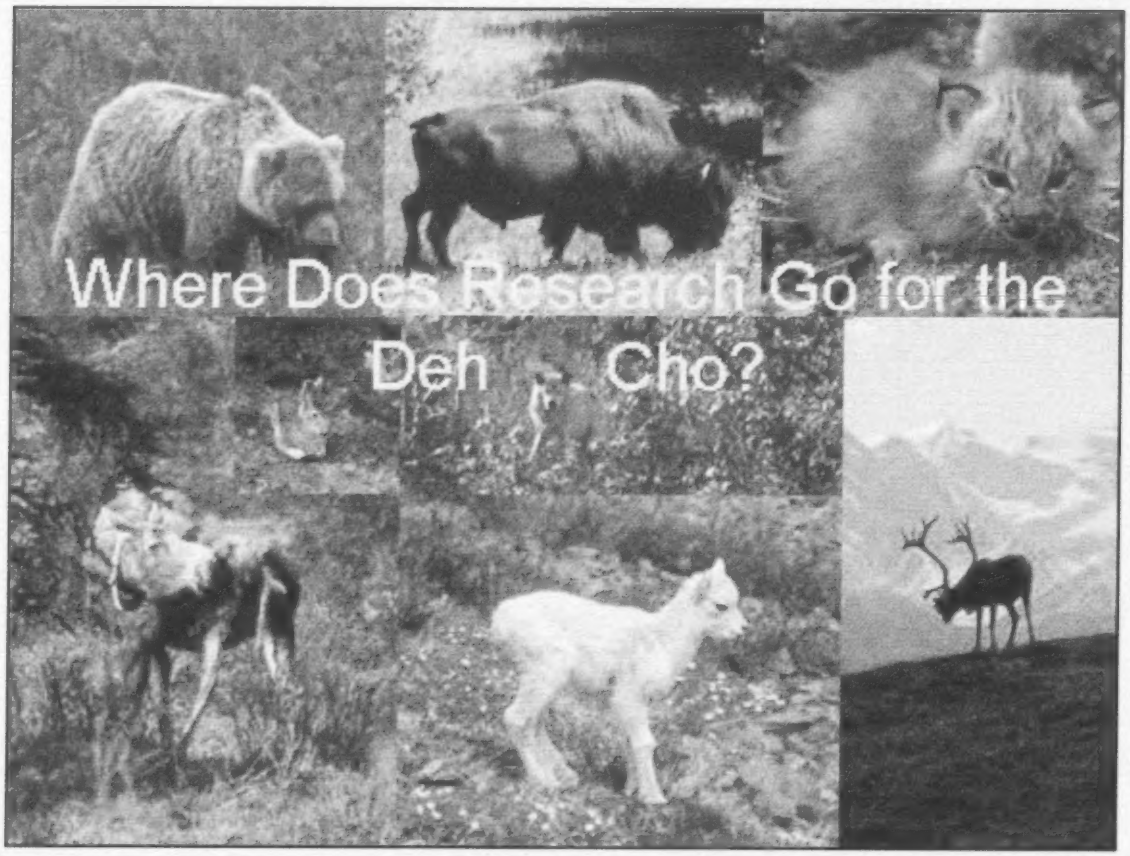
Wildlife Contaminant Issues in the Deh Cho?

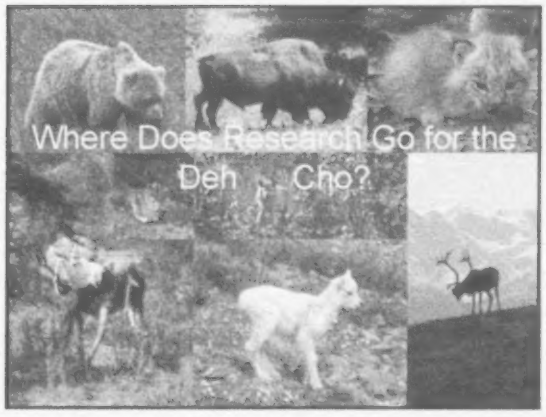
- Information gaps?
- Community concerns?

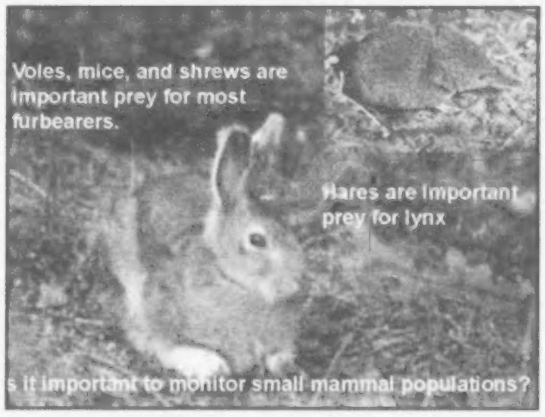
Appendix 15.

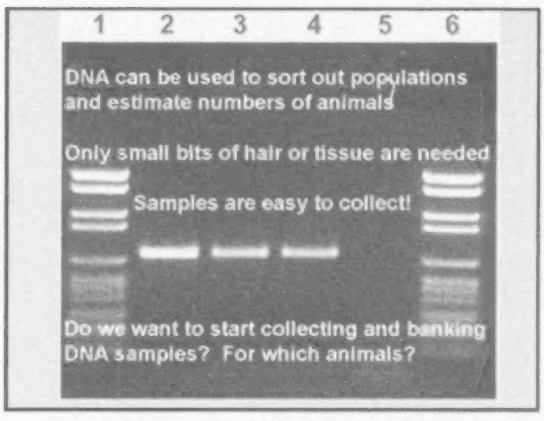
Where Does Research Go for the Deh Cho?

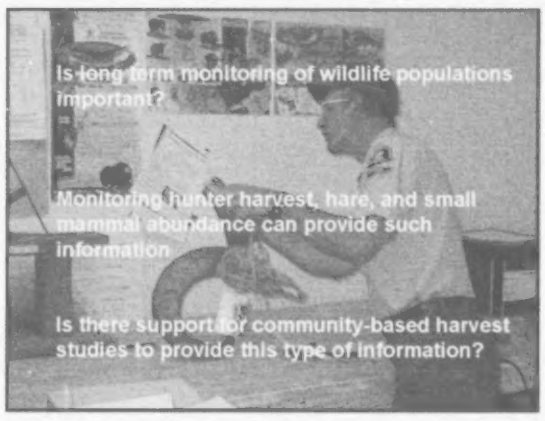
Presented by Nic Larter, RWED Fort Simpson

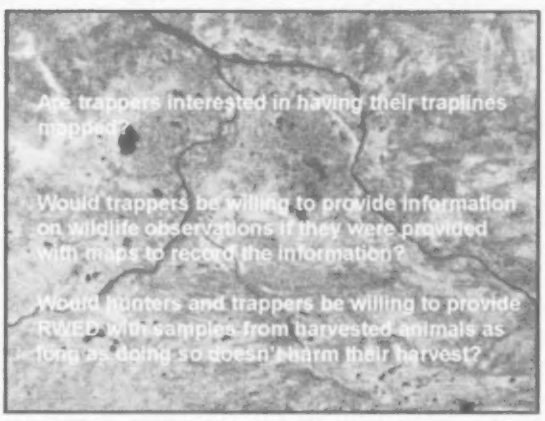


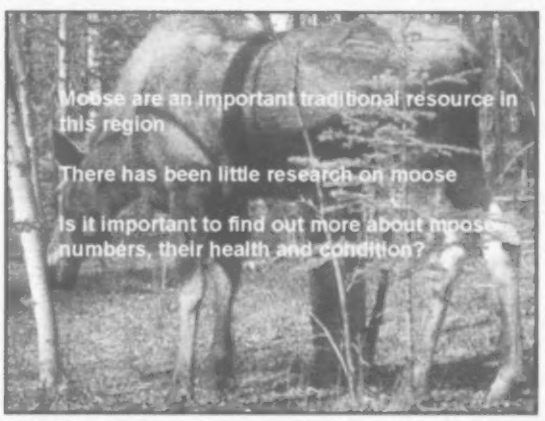

Where Does Research Go for the Deh Cho?


Voles, mice, and shrews are important prey for most furbearers.
Hares are important prey for lynx
s it important to monitor small mammal populations?

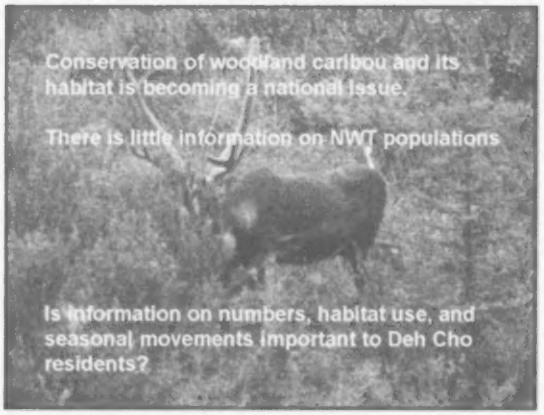

1 2 3 4 5 6
DNA can be used to sort out populations and estimate numbers of animals
Only small bits of hair or tissue are needed
Samples are easy to collect!
Do we want to start collecting and banking DNA samples? For which animals?

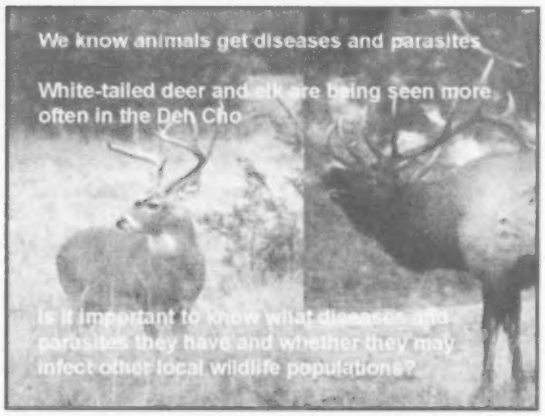

Is long term monitoring of wildlife populations important?
Monitoring hunter harvest, hare, and small mammal abundance can provide such information
Is there support for community-based harvest studies to provide this type of information?

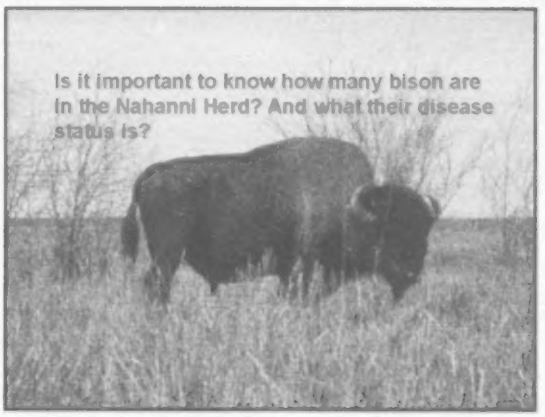

Are trappers interested in having their traplines mapped?
Would trappers be willing to provide information on wildlife observations if they were provided with maps to record the information?
Would hunters and trappers be willing to provide RWED with samples from harvested animals as long as doing so doesn't harm their harvest?


Moose are an important traditional resource in this region
There has been little research on moose
Is it important to find out more about moose numbers, their health and condition?

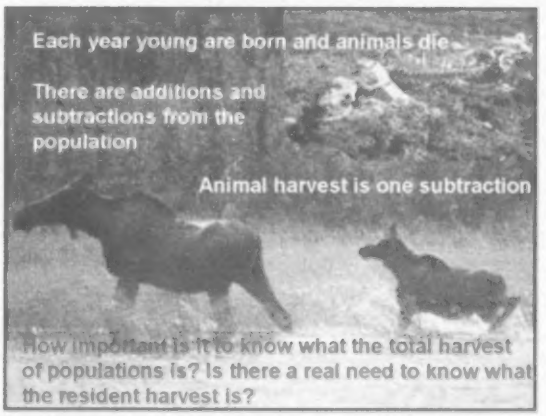
Is it important to know if sheep in the southern range of the Mackenzie Mountains have similar parasites to those found in sheep inhabiting the mountains of the Sahtu?


Conservation of woodland caribou and its habitat is becoming a national issue.
There is little information on NWT populations
Is information on numbers, habitat use, and seasonal movements important to Deh Cho residents?

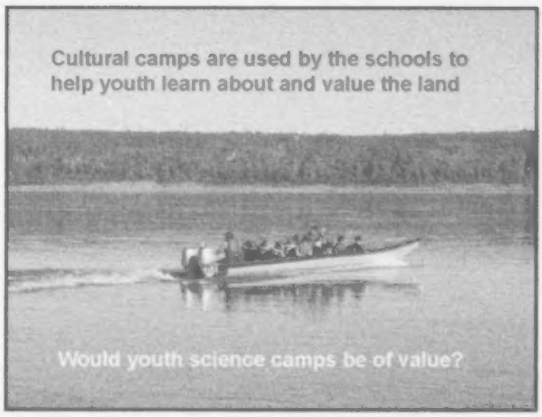

We know animals get diseases and parasites
White-tailed deer and elk are being seen more often in the Deh Cho
Is it important to know what diseases and parasites they have and whether they may infect other local wildlife populations?


Is it important to know how many bison are in the Nahanni Herd? And what their disease status is?

Many studies require known animals
Satellite collars can provide daily locations of individual animals
Is it acceptable to handle wildlife and equip them with radio-collars?


Each year young are born and animals die
There are additions and subtractions from the population
Animal harvest is one subtraction
How important is it to know what the total harvest of populations is? Is there a real need to know what the resident harvest is?

Is it important to have co-operation between biologists, wildlife officers, outfitters, and local harvesters?
The more eyes out on the land working together for wildlife the better


Cultural camps are used by the schools to help youth learn about and value the land
Would youth science camps be of value?